

JOURNAL

OF THE

AMERICAN VETERINARY MEDICAL ASSOCIATION

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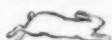
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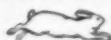
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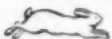
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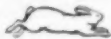
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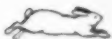
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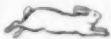
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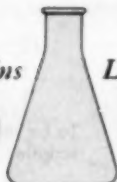
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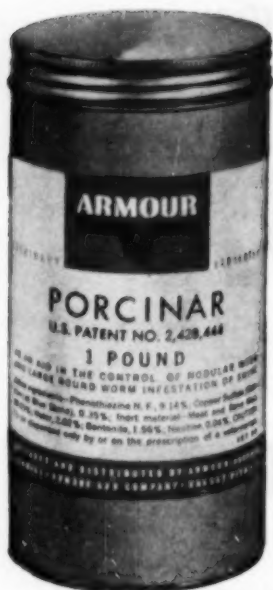
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Enteric disturbances	D S	<input type="checkbox"/> Surgical interventions (prophylactic use)	P D S
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<input type="checkbox"/> Enteritis*	D S	<input type="checkbox"/> Wounds*	P D S
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AVMA ☆ Report

Veterinary Medical Activities

★ President W. L. Boyd attended the annual meeting of the New England Veterinary Medical Association at Breton Woods, N. H., October 6-7, and the Eastern Iowa V.M.A. meeting in Cedar Rapids, October 9-10.

★ The Association was invited to be represented at the First Inter-American Congress on Public Health held in Havana, Cuba, Sept. 26-Oct. 1, 1952, and designated Dr. J. H. Steele, U.S. Public Health Service, and Dr. Angel Morales, secretary of the Cuban V.M.A. and delegate to the AVMA House of Representatives, since they were to attend the Congress in other capacities.

★ The AVMA was also represented at the annual congress of the British Veterinary Association held in Harrogate, Sept. 7-13, 1952, by Lt. Col. Rolland O. Scott, U.S.A.F. (V.C.), who is stationed in England.

★ Assistant Executive Secretary C. D. Van Houweling met with representatives of several commercial companies in Kansas City, Mo., and Washington, D.C., during recent weeks in an effort to get the official interpretations of the Food, Drug, and Cosmetic Act regulations pertaining to labeling.

★ The Association's Official Roster, 1952-1953, appears in this issue of the JOURNAL, p. 328. Several new committees have been appointed by President W. L. Boyd on specific diseases of large and small animals.

★ The Board of Governors, at their recent meeting, authorized the mailing of letters and special announcements to all members from the president, other officers, and the staff. The purpose is to bring to the members a more intimate knowledge of the Association's activities and to help keep them abreast of scientific and professional developments. These bulletins will supplement the information published in the JOURNAL and will make it possible to get "news" to members more rapidly.

★ The AVMA Research Fund Raising Committee, at a recent meeting, approved a direct mail campaign to the profession for supplementing the AVMA Research Fund. For details of the whole campaign see p. 318.

★ The AVMA staff is asking key members in each state to help in setting up a larger legislative organization. The purpose is to have a member who can effectively advise each U. S. representative and senator on pending legislation.

★ Planning of the scientific program for the 90th Annual AVMA meeting to be held in Toronto, Ont., July 20-23, began with a recent meeting of the secretaries of the six sections in the AVMA office.

★ Allied Laboratories Inc. have accepted the invitation of the AVMA Executive Board to continue to cooperate in the presentation of closed circuit television as part of the program for the next AVMA convention scheduled for Toronto, Ont., July 20-23, 1953.

★ The method of selecting the associate editors for the JOURNAL has been revised. President W. L. Boyd's new appointees will be found on page 317 of this issue.

★ The Board of Governors, on August 2, approved the participation of the AVMA in sponsoring jointly, with the American Medical Association, the U. S. Bureau of Animal Industry, and the U.S. Public Health Service, a national conference on trichinosis, tentatively scheduled to be held in the offices of the A.M.A., Chicago, on Dec. 8-9, 1952.



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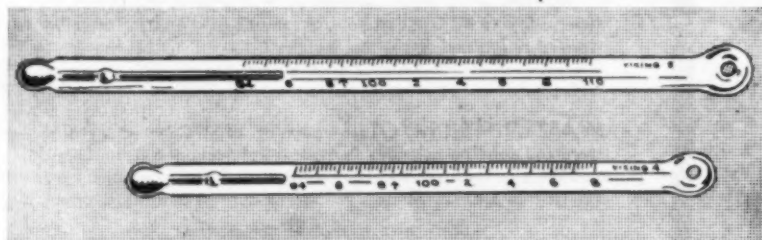
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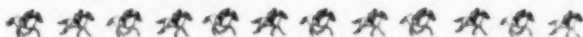


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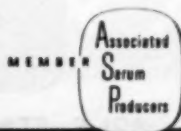
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1. Smith, L. W., and Livingston, A.E.: Am. J. Surg. 62:358, 1943.

2. Schaffer, J. D.: North Am. Vet. JI:817, 1950.



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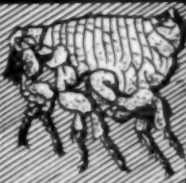



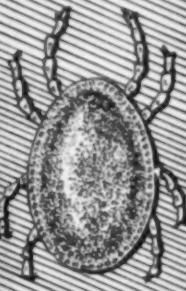

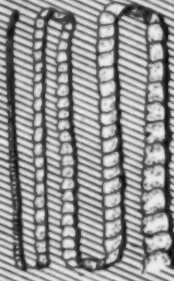
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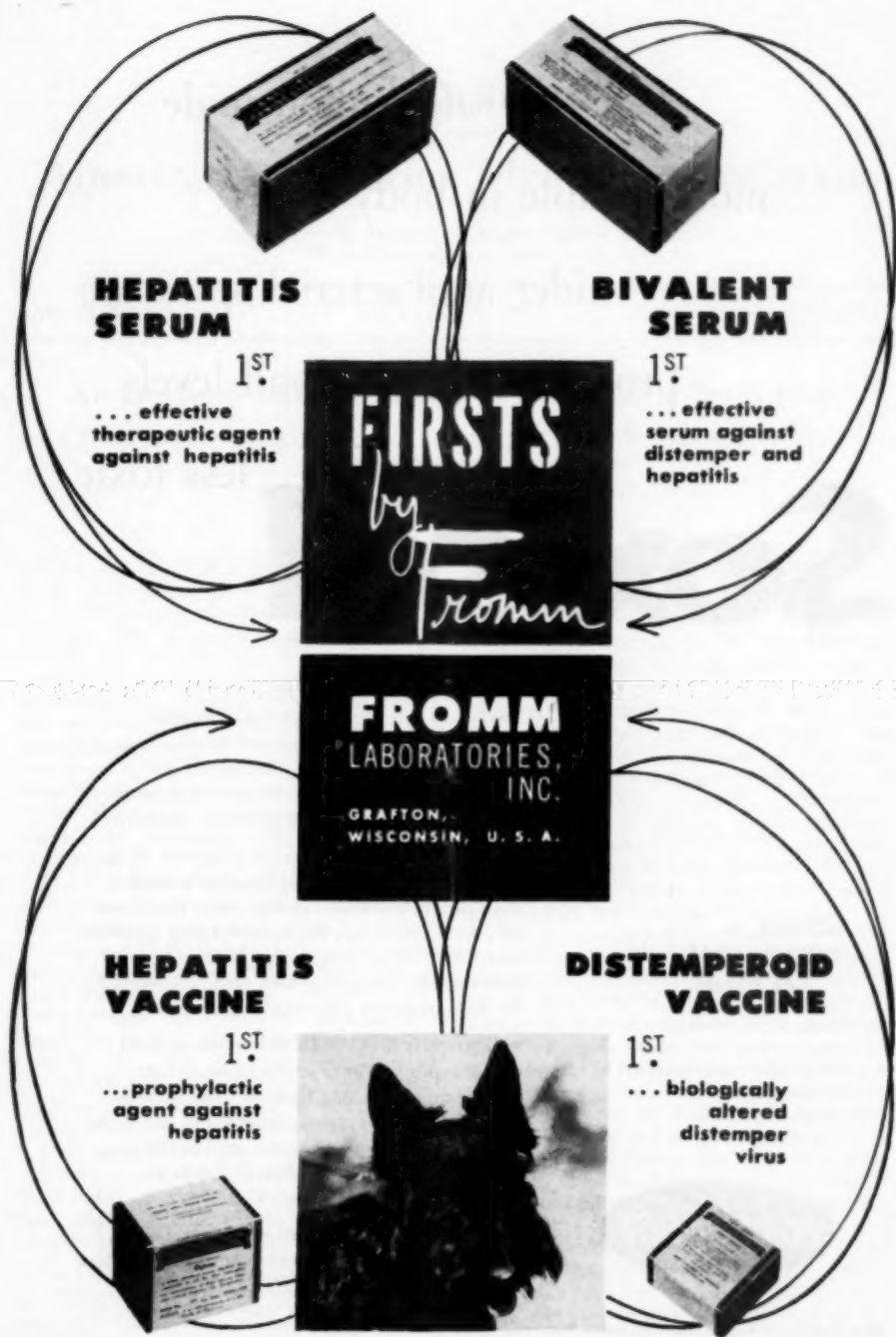
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¹Stewart, B. L., and Lash, J. J.
Jour. Urol. 64:801

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An Outbreak of Leptospirosis in Horses on a Small Farm

S. J. ROBERTS, D.V.M., M.S.; CHARLES J. YORK, D.V.M., Ph.D.;
J. W. ROBINSON, D.V.M.

Ithaca, New York

IN THE SPRING of 1952, there occurred on a small horse-breeding farm near Ithaca, N. Y., an enzootic of an unknown septicemic disease. This disease was characterized by a high body temperature, 103.5 to 105 F., that persisted for about forty-eight hours, depression or dullness, and anorexia. Icterus was observed by examination of the mucous membranes in 2 of the 6 horses affected and confirmed by blood studies on 1 of them. Blood samples taken on 3 of the affected horses showed a definite increase in the number of segmented and nonsegmented neutrophils.

The first mare affected developed periodic ophthalmia the day after her fever subsided. One of the mares delivered a premature foal that died in forty-eight hours with marked icterus. There had been no acute disease on the farm during the previous winter. No horses had been brought on, or returned to, the farm within the past three weeks. The symptoms exhibited by the affected horses did not resemble the common acute diseases of horses such as influenza or infectious bronchitis.

Because symptoms of elevated body temperature, icterus, and periodic ophthalmia were noted in this outbreak, leptospirosis was suspected and efforts were made to identify the causative agent.

From the New York State Veterinary College, Ithaca. Dr. Roberts is professor, Department of Medicine and Obstetrics; Dr. York is research associate, Veterinary Virus Research Institute; and Dr. Robinson is a medical interne, Department of Medicine and Obstetrics.

CLINICAL HISTORY OF NATURAL CASES

Case 1.—On March 21, 1952, a 9-year-old gaited saddle mare weighing about 1,100 lb. was reported to be off feed and depressed. Clinical examination revealed a body temperature of 104.5 F. with a slightly elevated pulse and respiratory rate. The mare was pregnant and due to foal in two weeks. No definite diagnosis could be made and the mare was given 3,000,000 units of procaine penicillin (aqueous) intramuscularly. On March 22, the mare's temperature had dropped to 102.5 F. No symptoms other than bilateral photophobia and lacrimation were observed, and 3,000,000 units of penicillin were again administered. On March 23, the mare's temperature was 102 F. Both eyes showed marked photophobia, lacrimation, cloudiness or greying of the cornea, and what appeared to be a coagulation of the aqueous humor. This condition was diagnosed as typical severe periodic ophthalmia. Five grams of dihydrostreptomycin were administered intramuscularly. On March 24 and 25 the mare's temperature was normal and remained so thereafter. On the latter date, since the eyes were still severely affected, 2.5 Gm. of aureomycin were administered intravenously and this treatment was repeated on the next two days. The mare's udder was tense and swollen. She foaled April 1. By April 2, the mare's eyes had greatly improved. Her udder was still swollen and remained so for several weeks even though treated regu-

larly. The milk was normal in appearance but scanty. On April 13, a blood sample was taken for serological determinations. The mare's eyes were nearly normal. By May 1, the eyes were completely normal and no further attacks have occurred.

Case 2.—On March 23, 1952, a 4-year-old Thoroughbred mare showed symptoms of anorexia, depression, and slight icterus. Her temperature was 105 F. The pulse and respiration rates were normal. Penicillin, 3,000,000 units, and streptomycin, 3 Gm., were administered intramuscularly at this time and on the following day, as her temperature was still elevated to 103.5 F. On March 25, her temperature had returned to normal and her appetite and condition improved rapidly. A blood sample was taken April 13 for serological determinations.

Case 3.—On March 24, 1952, an 11-year-old Thoroughbred mare foaled two weeks prematurely. The foal was weak, unable to stand, and icteric. The foal's temperature was slightly elevated and pulse and respiration rates were accelerated. Liberal use of antibiotics including penicillin, streptomycin, and aureomycin; supportive treatments

such as blood transfusions, saline, amino acid, and glucose solutions; and good nursing failed and the foal died forty-eight hours after birth. On postmortem examination, the foal showed marked icterus. Cultures on blood-agar of the spleen, kidneys, liver, and lymph glands showed no growth. Subsequent blood typing of this mare^{*} eliminated the possibility of neonatal isoerythrolysis. This mare had suffered previously from some sterility. She had lost a foal in 1944 with *Shigella* infection and one in 1951 of unknown causes. A blood sample was taken for serological determinations on May 6.

Case 4.—On April 8, 1952, a 2-year-old Thoroughbred gelding developed symptoms of anorexia and depression. His temperature was 104.8 F. A blood sample for a hemogram was taken and showed no icterus or other definite deviation from the normal except a moderate increase in neutrophils with 36 segmented and 28 nonsegmented neutrophils per 100 white blood cells. Peni-

^{*}Courtesy of Dr. D. W. Bruner, Department of Bacteriology and Pathology, New York State Veterinary College, Ithaca.

TABLE 1.—Data Concerning Outbreak of Leptospirosis Due to *Leptospira Pomona* in Horses on a Small Farm (March 21 to June 5, 1952)

Horse No.	Sex	Age (yrs)	Dates Blood Tested* for <i>Leptospira</i>							Symptoms and Remarks
			4/8	4/9	4/13	5/1	5/5	5/30	6/6	
1	F	9			1:512	1:8		1:4		Septicemia (3/21) followed by periodic Ophthalmia (3/23)
2	F	4			1:512		1:16	1:32		Septicemia (3/23)
3	F	11					1:128	1:64		Foaled premature "sleeper" icteric foal 3/24 (Foal neg to culture & icterus neonatorum)
4	M	2	—			1:16		1:16		Septicemia (4/8) G.P. isolation of <i>Leptospira</i> from blood.
5	M	1		—		1:32		1:16		Septicemia (4/9) G.P. isolation of <i>Leptospira</i> from blood.
6	F	22			—	1:8		1:4		Septicemia and icterus (4/13)
7	F	12				—		—		None
8	F	5				—		—		None
9	F	2/12						1:32		No symptoms (Foal of No. 1 Born 4/1/52)
10	F	6				—		—		None
11	F	1				—		—		None
12	F	1				—		—		None
13	F	24				—		—		None
14	F	4				—			1:4	No symptoms
15	M	2/12							—	(Foal of No. 14 Born 5/10/52)
16	F	4							1:32	No symptoms

* Blood tested by complement-fixation test.

Numbers represent dilution of serum fixing complement. — means no fixation.

cillin, 3,000,000 units, and streptomycin, 3 Gm., were administered intramuscularly daily for two days. Recovery was uneventful. Blood samples were taken on April 8 for serological and bacteriological studies.

Case 5.—On April 9, 1952, a bay yearling Thoroughbred colt developed similar symptoms of anorexia and depression with a temperature of 104.2 F. A blood sample for a hemogram was taken and showed no icterus or other deviation from the normal except a neutrophilia and an increase in immature forms, with 68 segmented and 13 nonsegmented neutrophils per 100 white blood cells. He was treated in a like manner and recovered promptly. Blood samples were taken from this colt on April 9, the day of illness, for serological and bacteriological studies.

Case 6.—On April 13, 1952, a 22-year-old Thoroughbred mare developed similar symptoms and an elevated temperature of 104.4 F. Icterus was evident in this mare. She received the same treatment as those described, but it was felt by this time that probably these uncomplicated cases would have recovered as promptly if no treatment had been given. A blood sample taken for a hemogram showed a leukocytosis with 13,450 white blood cells per cubic millimeter, and neutrophilia with an increase in immature forms with 82 segmented and 7 nonsegmented neutrophils per 100 white blood cells. Confirming evidence of icterus was noted by an icteric index of 60 and an indirect Van den Bergh reading of 4.1 mg./100 cc. of serum. Recovery was complete in two days. A blood sample was taken April 13 for serological studies and inoculation purposes.

In addition to the 6 affected horses, there were 10 other horses, 3 cattle, and 2 dogs on this farm. None of these animals showed any detectable illness. Serums were obtained on the other animals at intervals during the month of May except for 3 horses bled June 6.

IDENTIFICATION OF CAUSATIVE AGENT

From 2 horses, cases 4 and 5, showing signs of acute illness, blood was taken and each sample inoculated in 1-cc. amounts into each of a group of 2 guinea pigs. Temperatures were taken daily on each animal. Eight days after inoculation they were killed; the liver, spleen, and kidney from guinea pigs of each group were pooled,

made into a 10 per cent suspension in saline, and each preparation inoculated in 1-cc. amounts into each of a group of 2 other guinea pigs. Seven days after inoculation, 1 guinea pig from each group was killed and additional animals inoculated as described above. Thereafter, additional passages were made by drawing heart blood and inoculating 1-cc. amounts intraperitoneally into additional guinea pigs. In addition, blood from the third and fourth guinea pig passage was inoculated in 0.2-cc. amounts into tubes of Schuffner's medium and incubated for seven days at 37 C.

The temperatures of the first groups of guinea pigs inoculated with horse blood did not rise above 103 F. at any time, but in all subsequent passages the guinea pigs regularly developed a febrile response above 104 F., on about the fourth or fifth day after inoculation, that persisted for three to four days. Guinea pigs killed during the height of fever showed numerous small areas of focal necrosis in the liver and a varying number of petechial hemorrhages in the lungs that have been described as typical for *Leptospira pomona* infections in guinea pigs.^{1,4} In addition, in some of the guinea pigs killed during this period of infection, *Leptospira* organisms could be observed by darkfield examination of peritoneal fluid.

Cultures of the guinea pig blood in Schuffner's medium showed, by darkfield examination, numerous *Leptospira*. The *Leptospira*, from one of the strains isolated, was identified on the basis of cross-agglutination lysis studies as *L. pomona*.⁶ After a review of the literature on leptospirosis caused by *L. pomona*, this appears to be the first instance where this organism has been isolated from horses. Russian workers³ have previously reported the isolation of leptospiroses from horses, but they did not identify the organism recovered.

EXPERIMENTAL DISEASE IN HORSES

Production.—On April 13, the day of illness, 125 cc. of blood was taken from the jugular vein of horse 6 and citrated. This blood was injected within twenty minutes into the jugular vein of an 18-year-old saddle mare (A) at the New York State Veterinary College. Daily body temperature readings were made. Blood samples for blood

*We are grateful to Major Wm. S. Gochenour, Jr., Army Medical Service Graduate School, Washington, D. C., for identifying this organism.

counts were drawn at one- to three-day intervals. Blood samples were taken the day of injection, the day of illness, and several times subsequently for serological studies. A blood sample was taken on the day of illness for bacteriological studies.

On May 4, a 12-year-old gelding (B) and a 22-year-old gelding (C) were inoculated subcutaneously with 5 cc. of guinea pig blood containing *Leptospira* isolated as described above from horse 5 on April 9. This guinea pig blood used for inoculation was from the fourth continuous passage after initial isolation. Daily body temperature records were made on these 2 horses. Blood samples for hemograms were drawn and run at one- to two-day intervals. Blood samples were taken for serological and bacteriological studies as described previously.

Clinical Features.—Experimental horses A and B showed clinical symptoms of leptospirosis similar to horses in the natural outbreak except that depression and anorexia were absent. Horse A showed a rise in temperature on the eighth day after injection that persisted for forty-eight hours and then subsided with a peak of 103.6 F. (graph 1). Horse B exhibited a similar temperature curve except that the rise occurred on the sixth day with a peak of 104.4 F. This latter horse showed clinical signs of icterus during the febrile stage that was confirmed by blood studies, with an icteric index of 30 and an indirect Van den Bergh test of 2.9 and 3.25 mg./100 cc. of serum. Both horses A and B showed a marked increase in neutrophils, both segmented and nonsegmented, during the febrile stage of the disease (graph 1). Blood samples taken from horse A on April 22 and horse B on May 11, during the febrile stage of the disease, were inoculated into guinea pigs and *Leptospira* were isolated in the manner described previously. Horse C showed no response to the inoculation of *Leptospira* either by a rise in body temperature, clinical symptoms, or blood studies.

SEROLOGICAL STUDIES

Serological studies were made on blood samples from the 6 affected horses, an addi-

tional 10 horses located on the same farm, and the experimental animals by means of the complement-fixation test as described by York⁶ (tables 1 and 2). In the first 3 cases observed in this outbreak, the fact that a new disease entity in horses was being observed was not appreciated because of the dissimilarity of symptoms. Therefore, blood samples for serological determinations were not obtained until three weeks after the acute illness. In these cases, the disease was characterized by: septicemia followed by periodic ophthalmia in case 1, septicemia and icterus in case 2, and premature birth in case 3, and high titers for leptospirosis due to *L. pomona* were found.

The next 3 cases observed were of the septicemic type, with icterus being noted in case 6. In these 3 cases, serological determinations on serum obtained at the time of illness were negative for leptospiral antigens. Blood samples taken three and seven weeks later were positive for leptospirosis.

Blood samples taken on several occasions on the remaining 10 horses on the farm, that showed no clinical symptoms of the disease, revealed 3 that gave positive blood titers for leptospirosis. Foal 9 was probably infected by close contact with his infected dam (case 1). The other 2 mares had been brought on the farm within the past six months; mare 14 on Nov. 5, 1951, and mare 16 on Feb. 25, 1952. This latter mare came from a large stable where several horses were clinically affected with periodic ophthalmia. The blood of these horses affected with periodic ophthalmia was positive for leptospirosis when tested serologically.

Blood samples taken from 3 head of cattle

TABLE 2—Experimental Horses Injected with *Leptospira Pomona*

Horse No.	Sex	Age (yrs)	Dates Blood Tested* for <i>Leptospira</i>							Symptoms and Remarks
			4/13	4/22	5/4	5/7	5/11	5/19	6/5	
A	F	18	—	—		1:16			1:32	Blood transfer from No. 6 (4/13), Septicemia (4/22) G.P. isolation of <i>leptospira</i> from blood.
B	M	12		—			—	1:128	1:128	G.P. blood from 4th serial passage of <i>leptospira</i> from No. 4 injected subcut. (5/4), Septicemia (5/11), G.P. isolation of <i>leptospira</i> from blood.
C	M	22		—			—	—	—	No symptoms (injected as Horse B)

* Blood tested by complement-fixation test.

and 2 dogs, the only other animals on the farm, were tested serologically and were negative for leptospirosis.

The serological determinations on the experimental horses are given in table 2. All 3 horses experimentally infected were negative on the complement-fixation test prior to inoculation with *L. pomona*. Horses A and B were also negative to this test during the febrile period. However, serum obtained from horse A, fifteen and forty-four days, and horse B, nine and twenty-five days, after the febrile period were positive to the complement-fixation test for leptospirosis. Horse C showed no serological response to inoculation with *L. pomona* organisms.

DISCUSSION

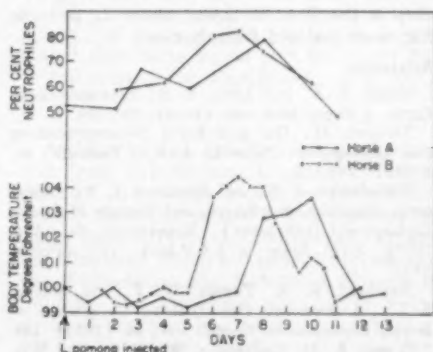
It was concluded that the septicemic disease occurring in horses on the small breeding farm near Ithaca, N. Y., was caused by *L. pomona*. Serological evidence in the natural cases, isolation of organisms from horses acutely ill, and reproduction of disease that resembled natural cases furnished the basis for this conclusion.

The manner in which the infection was introduced to this farm is not known. Mare 16 might possibly have become infected where she was stabled prior to February 25, 1952, and then carried and spread the infection in the urine as is known to occur in cattle. This mode of spread was favored on this farm by the practice of turning small groups of horses daily into a large common paddock for exercise. While out, these horses drank at a stream that ran through one corner of the paddock. With the advent of occasional good days in March, hay was placed in this paddock on the ground near the barn. In the barn, actual contact between adult horses was impossible because of solid partitions between the stalls. Periodic ophthalmia has affected an occasional horse on this farm even though riboflavin has been fed in the grain ration for the past three or four years.

Unfortunately, mare 1 that developed periodic ophthalmia was the first case to be observed. Had this case occurred later in the enzootic, more complete studies could have been made at, and immediately after, the febrile stage of the disease. As it is, all we know of this case is that twenty-three days after the attack she had a high blood titer for leptospirosis. The observation

reported in Switzerland² and the United States³ that nearly all horses suffering from periodic ophthalmia have a blood titer for leptospirosis has been confirmed the past two years in at least 12 horses in this vicinity. These observations might indicate that the febrile reaction produced by leptospirosis in horses may in a small percentage of cases be followed by periodic ophthalmia. Blood samples from affected horses taken at the beginning stages of the disease might still contain *Leptospira* that could be isolated in guinea pigs. Inoculation of a large number of susceptible horses with *L. pomona* might produce periodic ophthalmia in a small percentage of cases. It was interesting to note that this mare's foal (case 9) born April 1 had a well-developed titer for leptospirosis by June 5.

In this outbreak, it was obvious that neither age nor sex had any effect on the incidence of infection. The subsequent titer produced in the blood by *L. pomona* had no relation to the severity of the initial disease or attack. In this outbreak, 7 of 16 horses exposed to leptospirosis failed to develop symptoms or serological evidence of the disease. This was also observed in 1 of the experimental horses inoculated with *L. pomona*. The horses on the farm either failed to get infected although exposed, or they had a previous exposure and had developed immunity to the infection. In the case of the experimental horse C, a natural or acquired immunity was probably present. The prevalence or incidence of leptospirosis in horses is not known. It is very possible that it is more widespread than is realized.



Graph 1—Graph of neutrophil counts and body temperatures of 2 horses experimentally infected with *Leptospira pomona*.

Many cases of leptospirosis undoubtedly occur without being observed. In this outbreak, most of the affected horses showed only mild, transient symptoms. In this respect, the disease in horses is also similar to the disease in cattle.

Definite icterus was observed in only 3 of the horses in this study, 2 naturally infected and 1 experimentally infected. Abortions are common in some outbreaks of leptospirosis in cattle. Whether the premature birth of a foal described in this outbreak was due to leptospirosis is not definitely known. The mare subsequently developed a titer for leptospirosis and no other cause for the abortion could be determined. Further observations will have to be made to ascertain definitely whether leptospirosis in mares will cause abortion.

A practical test that can be used in the diagnosis of equine leptospirosis is the complement-fixation test. A blood sample should be taken during the febrile stage and again after several weeks. Usually, the sample will be completely negative during the acute phase of illness and, subsequently, serum titers will increase. On the basis of a rise in titer, a definite presumptive diagnosis of leptospirosis may be made.

SUMMARY

From horses that showed an acute septicemic disease, *Leptospira pomona* was isolated and the disease reproduced under experimental conditions. Animals during the acute phase of illness or before inoculation showed no complement-fixing antibodies but did following recovery. It is believed that this is the first instance where *L. pomona* has been isolated from horses.

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- Leptospirosis in Swine in Italy.*—From 112 suspected pigs, the serums showed 68 per cent positive to an agglutination test with *Leptospira icterohaemorrhagiae* and 13 per cent positive to *Leptospira pomona*.—*Vet. Bull.*, June, 1952.
- Veterinarians desiring a diagnosis of leptospirosis in animals should submit to the laboratory citrated blood, urine, and pieces of spleen, liver, and kidneys. These should be chilled but not frozen.—H. C. Smith, D.V.M., Iowa.

Anthrax — An Interesting Case

ROBERT F. SMITH, D.V.M.

Belleville, Wisconsin

At the present time, an anthrax epizootic appears to be affecting the North Central States. It is with this in mind, and the fact that many veterinarians may not have experienced an outbreak, that I am citing the following case and some of the complications which may be associated with disclosure of this disease on a farm.

On February 29 at 6:30 p.m., I was called to see a cow, too weak to stand, with labored breathing and a temperature of 101.6 F. After administering 500 cc. of calcium gluconate solution intravenously, she appeared somewhat brighter.

Two hours later, when passing the farm, I saw that the cow had died and was being skinned and sectioned to use as feed for pigs.

On March 7, a call was again received to visit the farm. A sow had died and, upon investigation, I found the following: congested lymph glands throughout, congestion of the lungs, edema of the neck, and dark bluish areas in the spleen. We collected portions of these organs in a wide-mouthed jar. The tissue specimens were sent to a diagnostic laboratory on Monday, March 10. Our tentative diagnosis was acute septic

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infection. The viscera of this sow were fed to a flock of chickens on the premises.

Also on March 7, the client mentioned that a second cow had not appeared to be eating that morning. Her temperature was 105.8 F. She was given $1\frac{1}{2}$ million units of aqueous penicillin intramuscularly and four 240-gr. triple sulfonamide boluses *per os*.

That evening, I was again called since a third cow was ill. She also had a temperature of 105.8 F. and was given $1\frac{1}{2}$ million units of aqueous penicillin and four sulfonamide boluses. At that time, a doughy swelling of the hock joint region was noted on the second cow.

On March 11, I was called for a fourth sick cow. She had a temperature of 106 F. and was treated in the same manner as the last 2 had been. This was the last temperature rise noted in the herd. All treated animals made an uneventful recovery.

On March 13, a veterinarian from the state laboratory arrived and disclosed that *Bacillus anthracis* had been found in the tissues submitted. He went to the farm and quarantined all animals and animal products, including milk and eggs. He questioned the owner concerning the outbreak and gathered some ground feed, a chicken egg, and a portion of the spleen of the cow that had died. The owner, believing the discolored spleen to have been the results of poisonous silage, had not fed it to the pigs but had buried it. The spleen had been buried intact for exactly six days.

I subsequently received a letter from the state veterinarian authorizing me to supervise the sanitation on the infected farm.

The quarantine was removed three weeks from the date of the last temperature rise. No further evidence of the disease has been detected.

On April 8, the laboratory reported that the feed sample, egg, and bovine spleen were negative to examination for *B. anthracis*.

The owner has become somewhat disconcerted over the failure to find the anthrax organisms in the spleen and doubts if the cattle actually had the disease. He also questions the right of the state to impose a quarantine on the farm which prevented him from shipping his milk for three weeks. He has even contemplated legal action against us and the State De-

partment of Agriculture in an effort to collect damages for the loss of milk. It is difficult for him to comprehend that the anaerobic and putrefactive conditions in the spleen during burial may have destroyed all of the *B. anthracis*.

In conclusion, this experience suggests that:

1) All animals which die suddenly of an unknown disease and others sick in the herd should be suspected of harboring *Bacillus anthracis*.

2) Utmost precaution should be taken when performing a postmortem examination and in submitting specimen to the laboratory to prevent exposure to yourself, to others, and to the premises.

3) The use of penicillin and sulfonamides seemed to be of definite benefit. However, had anthrax been suspected the penicillin should have been repeated, in a few hours, in an oil base for slow absorption to prevent a possible relapse.

4) The reaction of the client to quarantine and sanitary measures must be considered. He should be fully informed of the dangers from the disease and the reason for the quarantine.

The Chinchilla Industry.—The first Chinchillas were brought to the U. S. from the Andes Mountains of South America in 1923. There are now about 9,000 breeders and over 200,000 breeding animals. Many ranchers have over 2,000 animals each. The industry is still in the evolutionary stage, with breeding pairs selling for about \$1,250 a pair and only the casualties being pelted. If there were a market, it is estimated that pelts would sell for about \$25 to \$40 each.—*Am. Fur Breed.*, Aug., 1952.

A plane load of 198 pigs left on the long trip from Des Moines, Iowa, to Korea, on June 20. They were mostly purebred Berkshires, Hampshires, and Durocs, averaging about 50 lb. They were purchased through the Christian Rural Overseas Program and the Evangelical and Reformed Church to improve and replenish the native swine stock of Korea. The pigs were valued at \$25,000 but it cost nearly three times that much to ship them.—*Hog Breed.*, July, 1952.

Treating Shipping Fever in Northwest Iowa

This again is October—the month when the feeder-cattle influx from the ranges really gets under way. That migration with its inevitable changes of feed, exhaustion, and exposures apparently stirs up latent infections and often results in an outbreak of shipping fever with all its complications.

Time was when few calls were more dreaded than those for shipping fever or pneumonia. One could start with the A in the Pharmacopoeia and end with the Z, yet often avail himself and his patients little. Good care and nursing seemed to bring the greatest benefits.

Then about 1939 word of the new wonder drugs, the sulfonamides, got around but only the first of them—sulfanilamide—was yet available to veterinarians. It was used with hopeful anticipation but like a long list of preceding pharmaceuticals, it just didn't seem to be of much help in these cases. The next sulfonamides were therefore tried with considerable skepticism. Their use did seem to result in reduced losses and quicker recoveries, but one couldn't be sure; perhaps the disease was just less virulent that season. However, as the case histories accumulated it became evident that these drugs were effective. Shipping fever calls then became less unwelcome.

THE SULFONAMIDES

Finally, sulfathiazole was recognized as a drug which could deal this shipping fever infection, whatever it is, a telling blow. It was then learned that the soluble salt of this drug—sulfathiazole sodium—could be administered to cattle in their drinking water in effective therapeutic concentrations without their tasting it enough to dangerously reduce their water consumption. Thus, it became necessary to treat individually only the sicker animals while the milder cases, which often was the balance of the herd, and the convalescents could be confined so that they were forced to treat themselves. The standard dosage for sulfathiazole—1 gr. per pound per day—was used for individual treatment but, in the drinking water, a half or even a third of that dose usually seemed quite effective. All one had to do was to compute the total weight of the animals in the lot and add, to one day's supply of water, 1 gr. of the drug for every 2 or 3 pounds of animal.

The chief advantage of the sulfonamides, which were introduced after sulfathiazole, seemed to be their slower elimination, which made it possible to treat individuals only once per day instead of two or three times. However, the cheaper sulfathiazole continued to be indicated at least for medicating drinking water.

THE ANTIBIOTICS

For years that program worked well. Then came October of 1950. Something was different—many of the supposedly shipping fever cases failed to respond to sulfonamides. In fact, the disease was often so acute that many of the animals were dead, or too close to it, before they could be treated. Penicillin then was again tried but as in previous trials, contrary to the benefits derived from it in swine pneumonias and in many other conditions, it seemed to be of little if any benefit for these shipping fever cases in cattle. Streptomycin was next tried and the response to it was often almost unbelievable. In herds of various-sized cattle, where untreated cases often had died in twelve to thirty-six hours after the first symptoms, those which were treated, even a few that were too weak to rise alone, made rapid recoveries. Usually, the acute cases that had temperatures of 104 to 107 F. when first treated would have 101.5 to 103 F. the next day. Those that could scarcely rise the first day often were hard to catch the second. However, if not re-treated, a few would have a relapse by the third or fourth day.

The dosage used was 1 Gm. of streptomycin intramuscularly for each 300 to 400 pounds of animal. This was repeated daily for the cases that responded slowly. However, sodium sulfamerazine solution usually was given intraperitoneally or intravenously, 1 gr. per pound, at the first treatment. The convalescents then got sulfathiazole in their drinking water. This system worked well in 1951 also, except when shipping fever cases were complicated by what appeared to be leptospirosis. Leptospirosis is usually difficult to diagnose but when it complicates some other disease, such as in this case, it is even more so. In one herd of big feeder heifers, 20 uncomplicated cases of shipping fever responded typically, whereas 5 obviously complicated cases died

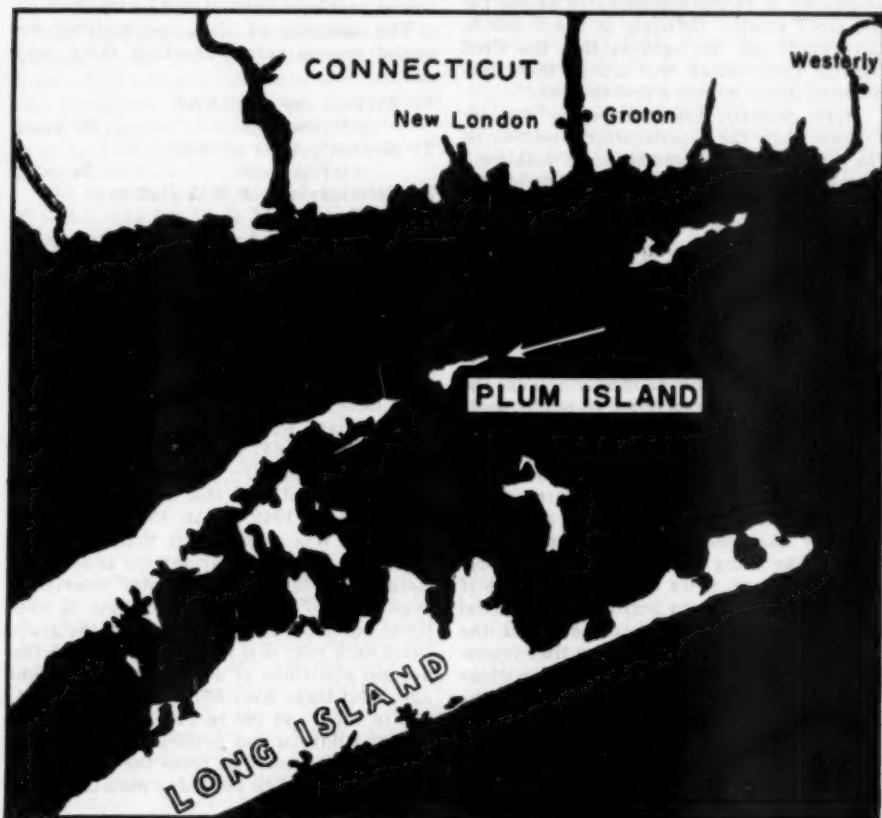
in twelve to sixty hours in spite of a variety of treatments including terramycin and antiserum.

The temperatures of these 5 heifers were usually normal and never over 103 F. but all showed the same symptoms—weakness, anoxia (gasping for air), and mild icterus. Autopsy of 4 revealed an extensive bilateral pneumonia, yellowish livers, and acute nephritis. The laboratory diagnostician found evidence of leptospirosis infection in either blood, urine, or tissue specimens from 3 of these cases.

Reports from various practitioners indicate that for treating uncomplicated ship-

ping fever cases, terramycin and bacitracin are also very effective. Other antibiotics may be effective also. The synergistic action, when using certain sulfonamides with certain antibiotics or between compatible antibiotics, may be superior to any of these agents used alone. The additional use of antisera and other supporting treatments may also be of value. At least the picture has changed. In place of the discouraging lack of a potent armament with which to battle shipping fever, we now have a considerable choice of relatively potent weapons.—W.A.A.

Site of Laboratory for Research on Foot-and-Mouth Disease



Plum Island, an 800-acre island 1½ miles off the tip of Long Island, N. Y., and 10 miles from Connecticut, is where a \$10 million laboratory for research on foot-and-mouth disease will be built, which is expected to be completed in two years.

In addition to its natural isolation, a protective wall around the compound will bar all human or animal intruders. The United States is now one of the very few countries free of "aftosa." The facts learned at this laboratory should help to keep it that way.

AVMA Acts to Help Bureau of Animal Industry Recruit Veterinarians

The AVMA, working through a committee of the Executive Board assisted by the staff, has made marked progress in its efforts to elevate the standings of veterinarians employed by the federal government. A recent development in this regard is that the U. S. Department of Agriculture has formally recommended to the Civil Service Commission that the beginning grade at which veterinarians will be employed be raised to GS-9 from the present GS-7. The starting annual salary for GS-9 employees is \$5,060 compared to \$4,205 for the GS-7 grade. Officials in the U.S.D.A. have expressed the opinion that the Civil Service Commission will accept their recommendations within a few months.

More recently, the Association was informed that the classifications section of the Civil Service Commission is making a thorough study of the classifications of veterinarians employed by the BAI. At the time this is being written it is not possible to predict what the outcome of this study will be. This study is necessary before the recommendations of the U.S.D.A. relative to the higher classifications for veterinarians can be approved.

The reasons for the success of this effort are several—probably primarily because the objectives of the Association were obviously not selfish. Neither could the AVMA be accused of merely trying to get more and better jobs and higher salaries for federally employed veterinarians. Members of the Executive Board and staff could show conclusively that the Bureau of Animal Industry was going to have to offer more remuneration and more attractive careers if it were to continue to perform its essential services to the livestock owners and the public. It was possible to show that veterinarians were not attracted to BAI positions and that the veterinary personnel of the Bureau will have to be augmented materially in the immediate future or it will not be able to perform the duties it is charged with.

That is why it was possible to get the active support of one of the national farm organizations. They recognized that a strong, well-staffed BAI was essential for

the protection of the nation's health and livestock industry.

PROCEDURE FOLLOWED

The Executive Board Committee and Assistant Executive Secretary C. D. Van Houweling spent two whole days in Washington, D.C., studying the problem (see June JOURNAL, p. 407). Members of the Executive Board Committee also met with federal veterinarians in their home areas gathering information relative to the personnel problems encountered by the BAI.

The analysis of data accumulated revealed several rather shocking facts, such as:

- 1) Average age of all BAI veterinarians 50 years
- 2) Median age for all BAI veterinarians 54 years
- 3) Veterinarians on BAI staff over 70 years of age 30
- 4) Average age of veterinarians in the lowest (GS-7) grade ... 41 years
- 5) Percentage of veterinarians under 30 years of age 9 per cent

There were other disturbing conditions unearthed. The BAI needs 250 more veterinarians to perform the work for which they have a demand. The total number of veterinarians working for the BAI has decreased from 2,647 in 1940 to 1,502 in 1951. In spite of intensive recruiting campaigns, the Bureau had been able to attract only 38 graduates in 1949, 20 in 1950, and 41 in 1951. It was pointed out that, since the total BAI force of veterinarians is approximately one tenth of the total veterinary population of the U.S., it will have to continue to recruit about one tenth of the graduates each year if it is to keep pace with the natural attritions of death, retirement, and age. But there were 557 graduates in 1949, 694 in 1950, and 795 in 1951. It is apparent that the Bureau was getting only about one half as many recruits from the graduating classes as would be needed to maintain their veterinary staff.

The committee, with BAI officials, met with the director of personnel for the U.S.D.A., Mr. T. Roy Reid, and his assist-

ant. A friendly frank discussion with them revealed their concern over the shortage of veterinarians on the BAI staff. They, however, were not inclined to initiate any action at that time.

CONCLUSIONS OF COMMITTEE

The Committee concluded after their study that the U.S.D.A. would have to (1) offer higher starting salaries; (2) offer more opportunities for advancement within the Department and for outside graduate work; and (3) carry out a more effective public relations and recruiting campaign if they are going to obtain a sufficient number of veterinarians to perform the functions for which the U.S.D.A. is responsible.

SUBSEQUENT DEVELOPMENTS

The most urgent need was believed to be the higher starting salary. Support for this from other organizations was solicited and the American Farm Bureau Federation's board of directors adopted a resolution supporting higher starting salaries for veterinarians working for the U.S.D.A.

The Association continued to urge the U.S.D.A. and the Civil Service Commission to make the necessary studies required for an upgrading. Later, the BAI recommended to the U.S.D.A. through the Agricultural Research Administration that the starting salary for veterinarians be increased to at least \$5,000 a year and that the Civil Service Commission be asked to cooperate and assist in obtaining this increase. As indicated before, this recommendation was approved and the Civil Service Commission is making the necessary studies which will have to precede a general upgrading.

CONCLUSION

This article is not intended as a "horn tooting" article about the actions of the AVMA. It is an honest statement of fact, however, that the AVMA did initiate this action and, although it could not have succeeded without the active cooperation of the government officials, it likewise would not have been possible for the government officials to proceed this far or as fast without the active interest and support of the Association. As pointed out before, this campaign has probably succeeded as well as it has because the long range objectives

and gains which will result are not for the benefit of AVMA members or veterinarians alone. When a program can be shown to be beneficial or essential to the health of the people and the livestock of the nation, it has a broad base of appeal from which to draw support. Endeavors of a more selfish nature can't be expected to receive the active support received in connection with this effort to augment the staff of the BAI by upgrading and increasing salaries.

Although final action has not been taken by the Civil Service Commission, it does seem likely that the request from the U.S.D.A. will be granted. The Association has been assured that this action will be taken before the 1953 classes graduate from the schools of veterinary medicine.

The other recommendations of the AVMA committee are to the U.S.D.A. and, more specifically, the BAI. *Starting salaries will not retain a staff.* Increased opportunities for improvement and advancement will have to be offered if the top-flight staff members are to be retained for a career. The elevation of the standards and prestige of the work performed by the federal veterinarians will also help retain personnel, particularly if there is a parallel recognition of their important functions on the part of the profession and public. This will require the U.S.D.A. and BAI to carry on a better "public relations" program.

A New Relaxing Drug.—A Vienna doctor recently demonstrated on himself the effectiveness of a new paralyzing drug — succinylcholine chloride. Effective in less than a minute after being injected, it paralyzes even the muscles of inspiration but is effective for only one to two minutes. Its action is similar to that of curare. It had been previously tested on dogs, cats, pigeons, and frogs. The patient remains fully conscious so, for surgery, an anesthetic must be given with it. The iodide form of the drug is being used regularly in hospitals in Stockholm.—*Sci. News Letter*, July 5, 1952.

California's recent earthquakes apparently did more damage to the rich irrigated farm lands in that area than to buildings in the cities. The loss due to damaged irrigation pipe lines can not yet be estimated.—*West. Livestock J.*, July 31, 1952.

The Small Animal Hospital—A Business Enterprise

WILLIAM E. RUGGLES, D.V.M.

Portland, Oregon

THE MODERN small animal hospital is a comparatively new business enterprise, most of them having been established in the last thirty years. Their reputation is a credit to the profession and to the men and women who have worked under many difficulties to make them succeed. The operation of a small animal hospital is unique in that the handling of both people and their pets is involved.

To succeed in the operation of an animal hospital, the practitioner must have (1) adequate professional knowledge; (2) business ability; and (3) qualifications to deal with both human beings and pets.

PROFESSIONAL TRAINING

Professional ability is important but is of little value without the possession of the other two points mentioned.

We are fortunate to have several good veterinary schools in this country with a six-year course which covers the field of veterinary medicine in a way comparable to medical schools in the human field. There is, however, a need for some improvements in the curriculums. In the senior year, instruction should be given in business fundamentals as applied to beginning a practice and building a hospital. Some effort should be made to accommodate seniors desiring to specialize in small animal work, large animal practice, research, or teaching. Above all, I believe it important that before a license to practice is granted, a graduate should serve at least one year of internship. The value of such an internship to both the veterinarian and the public is obvious. The graduate would have the opportunity to learn the fundamentals of handling a practice and of working with fellow veterinarians. He would learn how to eliminate the small but costly mistakes a recent graduate is likely to make and thereby create better public opinion toward the profession. He would also learn the psychology of handling the public and their pets.

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BUSINESS ABILITY AND HOSPITAL MANAGEMENT

In a small animal hospital, the veterinarian is business manager, surgeon, purchaser, diagnostician, nurse, personnel director, head of the complaint department, and heir to many other duties. A successful manager must adjust his operations to the changing times and trends. He must be able to delegate responsibilities to others and to take off enough time for relaxation to conserve his health and to increase his medical knowledge, as well as to improve his social standing. These remarks on managing and directing a hospital are based on my years of practice, personal experience, and observations, and the results of the efforts and writings of other veterinarians (see the JOURNAL, Feb., 1928; and *Vet. Med.*, Aug., 1950).

The Hospital.—The architecture of the hospital should be attractive, the walks, windows, and surroundings clean, as the client's first impression may determine his confidence in the hospital and its services.

The reception room should be decorated in attractive colors and should be large enough to accommodate the clientele. Proper furniture and pictures help to create a pleasant impression. Literature on distemper, worming, feeding, and veterinary services, compiled by the state veterinary medical association, should be displayed along with magazines of recent issue and general interest, e.g., *Ladies' Home Journal*, *Life*, *National Geographic*, *Outdoor Life*, and similar publications. The diploma of the veterinarian, or veterinarians, should be displayed prominently.

At all times, the room should be clean and free of offensive odors—this rule applies to the entire hospital. The use of plenty of hot water and soap is sufficient to keep floors, cages, utensils, and woodwork clean and odorless. Proper ventilation is also important. The floors should be free of hair, paper, or other debris, and flies, ants, cockroaches, and other insects should not be tolerated in the building. Kennels and the interior of the hospital should be kept well painted.

It is important that definite routines should be established and the public, as well as the employees, educated in this respect. Office hours should be easily seen; usually a framed card 14 in. by 20 in. is sufficient to include the following:

Office Hours: 8:30 a.m. to 12:00 noon,
2:00 p.m. to 6:00 p.m.
Sundays and holidays: 10:00
a.m. to 3:00 p.m.
Visiting hours by appoint-
ment.

Terms: Cash.

Deposit: Required on all boarding or hos-
pital cases.

Animals dismissed only during office hours.

Animals kept on leash or in arms at all
times.

(The names of doctors and telephone num-
bers for emergencies)

Records.—Proper records of patients are more important than many veterinarians realize. A card 6 in. by 10½ in. is sufficient for the necessary data (see fig. 1). When the case is dismissed, the record is typed and kept alphabetically in a permanent filing cabinet. This card can be used on subsequent visits and saves considerable expense. Daily records of temperatures, treatment, appetite, bowel movements, and condition of patient should be marked on the record.

It is important to mark properly each case taken into the hospital to avoid mistakes by kennel men or other veterinarians who may work with the animal. All articles received with the patient should be tagged with the owner's name and properly filed for delivery when the patient is dismissed.

At the end of each day all records of patients leaving the hospital are filed alphabetically in a loose-leaf folder, and all cash received is recorded in a journal. All cash received or paid out is recorded in the cash register and totaled daily. A steel filing cabinet in the secretary's office contains all cases for the current and past two years. It also contains current bills due, bad accounts, and distemper injection records in easy-to-find sections.

A journal is kept of each month's operating expenses along with receipts, with expenses segregated as to labor, drugs, rent, and miscellaneous items. This is important in preparing income tax returns.

A separate record is kept of employees' salaries and social security numbers, ages, addresses, etc. This is necessary because of the current laws governing income on wages, deductions, and the filing of quarterly and annual returns of said wages.

A daily record of baths and clips is necessary, as some clients will desire such service for their pets before taking them home from the hospital. This information is marked on the date pad and scratched off as the work is completed.

A system of colored cards, 2 in. by 3 in., is used to indicate certain conditions of the patient or instructions to the kennel man, e.g., red means loose bowel movements; black, that the patient is not to receive food; and blue, that the patient is not eating.

All paid bills are filed and saved for seven years, because of the statute of limitations. Cancelled checks, cash register receipts, and payments, along with insurance policies, are kept in a safe.

Collecting Fees.—Our hospital regulations state that terms are cash on dismissal of the patient, but it is well to know as nearly as possible the ability of the client to pay when the case is received. If a deposit is left and daily charges explained, less difficulty is encountered in collecting fees when the case is dismissed.

Some collection pointers are: (1) Insist on a deposit on guarded prognosis, distemper, skin disease, and paralysis cases, and on pups, fractures, and long-time boarders. (2) The request for a deposit will detect a price complaint, willingness to pay, and attachment to the pet. Some alibis for no deposit are "stop by tomorrow," "pay on pay day," or "send bill." These cases are usually to be distrusted and the amount of the bill should be watched closely.

Other precautions include: request phone number; use caution on calls and deliveries; be wary of clients with hotels or apartment houses as addresses or who do not give an address; investigate credit of bragadocio; check on people moving or not having lived long at address given; check credit references; insist on cash for serums and vaccines administered; be cautious of the person in a hurry; collect fees for hospital cases weekly from doubtful clients; send monthly or weekly bills to long-time boarders; do not accept patient without partial payment.

All bills are rendered monthly and after three such statements without a payment, the secretary should phone the client and record the information received. If not paid as promised, or in thirty days, another phone call is made and if not paid then, it is turned over to an agency for collection, or a personal call is made to determine further the cause of nonpayment. Bad accounts should be reported to the local

association to eliminate such risks for other veterinarians.

Purchasing Supplies.—One should not overstock on items seldom used. An order book should be kept in which the drug houses and other firms from which you buy are listed. Needed items are recorded and ordered before the stock is depleted. It is well to anticipate needs and order in quantities to obtain discounts. A wise

[illegible]

veterinarian pays his bills promptly, takes advantage of cash discounts, and keeps his credit in good standing.

Insurance.—Public liability insurance, which protects veterinarians on accidents that might happen to clients or others while on the premises, is essential. Other necessary insurance includes proper coverage for fire losses, malpractice insurance, and coverage on all employees.

Professional Ethics and Public Relations.—The question of ethics and advertising in conducting a small animal hospital is controversial. The veterinary profession falls far below other branches of medical science when it comes to professional advertising but, with a desire to clean our own house, we can attain the same plane as related professions. Well-conducted hospitals and intelligent medical service are good-will advertising that pays big dividends.

The fact that veterinarians are civic-minded men, who promote the welfare of the community and pets, creates a public opinion that eliminates the necessity of block-type or bold face advertising in the classified section of the telephone directory.

The primary purpose of ambulance service, up to the present time, seems to be to advertise the hospital. Very few men have made ambulance service pay for the investment because, with present-day modes of transportation, most people are able to bring their pets to the hospital in their own cars or by taxi.

Costs and Fees.—The cost of operating a hospital in relation to fees charged is one that is ever changing, and the wise veterinarian will adjust his fees and operations accordingly. Records show that in the last ten years, the salary for lay help has increased more than 100 per cent. With living costs up, it has been necessary to increase the pay of lay help, even though they are not qualified to do the work required. Prices of drugs, biological products, instruments, and hospital supplies have increased more than 50 per cent. Taxes—federal, state, and local—have also increased tremendously. The cost of living has risen to a point where the average veterinarian is making less profit than was possible ten years ago.

Fees have been increased but, in general, the volume is not as great as six or seven years ago. This is because there are more veterinarians and also because the pet-

owning public is largely of the "white collar" class which has not received large salary increases. More uniform charges for veterinary service seem to be a good public relations endeavor.

Personnel.—The clientele judges the kind of veterinary service they are receiving by the appearance of the hospital personnel. A secretary with a pleasing personality, who answers the phone promptly and gives courteous and intelligent answers, renders statements promptly, keeps hospital records in good shape, and is generally helpful is a definite asset.

Kennel helpers should be clean in dress and habits, able to take orders, and trained in the proper handling of animals. Those best fitted for this work are older men who have spent most of their lives around livestock and who have a love for animals.

Hospital Management.—Everything possible is done to control the spread of contagious diseases in the hospital. Known infections are isolated; dishes, feeding pans, instruments, etc., are kept clean and sterile. Animals are fed twice daily and are exercised after feeding. Special attention is given to those animal which are not eating. It is as important to feed and water an animal properly as it is to give proper medication.

The following are a few suggestions worth following:

- 1) It is as important to discharge a patient correctly as it is to receive it. The owner should have proper instructions in regard to ration, medication, exercise, and amount of water. Make sure that the owner knows when the animal is to be returned for further medication or attention.
- 2) If a patient gets away by accident, notify the owner at once and make every effort to find it.
- 3) Notify the owner immediately if the patient's condition becomes worse or new developments are observed.
- 4) Notify the client of all deaths immediately and ascertain what disposition is to be made of the body.

Four essential rules for the successful operation of a hospital are:

- 1) Maintain cleanliness and tidiness in the hospital at all times.
- 2) Have sufficient trained personnel and proper facilities to render desirable veterinary service promptly.
- 3) Control parasites and contagious and communicable diseases in animals under your care.
- 4) Charge and collect fees for your service which are commensurate with your efforts and fair to your clients.

I have covered two phases of practice: The first phase is college training, reading of literature, and practical experience. With the desire for further improvements, we are, in most cases, giving desirable veterinary service. The second, or business phase, is often the downfall of a professional man. A good practice may easily be ruined by poor business organization and a failure to apply the fundamentals of buying, selling, collections, savings, and investments.

HUMAN AND ANIMAL PSYCHOLOGY

The third phase of our work is the one most neglected. There is a great opportunity here for increased study and application of the simpler theories concerning the mind and reactions of both man and animals.

During the past twenty years, the veterinary profession has gained much public confidence, because the type of men in the profession are better fitted for the work and have the equipment to give the service that the public demands and is entitled to receive. We usually find small animal hospitals located on prominent thoroughfares. They are neat and attractive on the outside, and the interiors are clean. The patients have every necessary facility for proper care. The veterinarians in charge present an appearance in keeping with the surroundings. The high class animal hospital and veterinarian provide a welcome contrast to the public which, some years ago, was accustomed to seeing a dingy old wooden building with torn curtains, a broken window, a urine-smelling reception room, and a combined operating and examining room. Perhaps, to complete the picture, one would see the doctor in a blood-spattered jacket, with repulsive habits and bearing. The patient would be shoved into a dark, dirty cage, and left there on a hard board floor to receive attention probably once a day, if the attendant didn't forget about it. Is there any need to mention the contrast of most of our animal hospitals today?

Suppose that a case comes to you after it has been treated by a competitor. What is the advantage for you to knock his methods in an unprofessional way? You may be absolutely right in your diagnosis and treatment, but the case may not have the outcome you anticipate for reasons beyond your control. If you have criticized the

other fellow, then the client might well wonder whether the second doctor knows any more than the first. He would probably lose confidence in veterinary service and rely thereafter on proprietary medicines sold at drug stores or pet shops, where he will be given a diagnosis over the telephone with the recommendation to buy a certain prescription, perhaps put up by unscrupulous veterinarians and sold in certain drug stores where bright colored cure-all fluids are on display.

Sentiment plays an important role in small animal practice. One person will bring in a sick dog and think of only one thing — that the animal shall receive the best of care for as long as may be necessary. A deposit is left without hesitation. The next client desires to know how much it will cost before the case is diagnosed. If he has \$20 in mind to spend on the dog, even though he could afford a thousand, and you tell him it will be approximately \$60, very likely you will get only an examination fee.

The public should be better educated as to the care necessary in treating animals and taught that their ailments and recuperating powers are similar to those of human beings.

Most veterinarians underestimate their actual value and service. We charge \$5 to \$25 for a major abdominal operation, using the same techniques, skill, antisepsis, and requiring nearly the same overhead as our brother physician who commands \$50 to \$250 and accordingly receives that much more respect and appreciation. If we obtained more for our services, our skill would be more esteemed. We could have better equipment, maintain a higher social prestige, support more civic enterprises, travel, and thereby learn and obtain the proper recreation necessary for one who is as confined as most of us are by our hospitals. Instead of giving so much free advice every day, we would be able to make appointments for our consultation and diagnosis on the case in question.

Service with satisfaction probably cures as many cases in the client's mind as do pills given three times a day before meals. It is essential therefore that the owner realize the condition of the case as much as possible, and be kept in that state of mind until the patient is discharged as recovered. No one is able, especially in our line of endeavor, to please everyone. Suppose you

tell a client, with all sincerity and honest judgment, that her cute little Pekingese may be over his illness in a few days. Then for some reason, the animal is in dog heaven the next morning before you arrive at the office, and the client has learned from the attendant that her dog passed away. The result is that you probably have lost a client.

To hide your light under a basket is not logical, nor is it any more logical to toot your horn so loudly that it annoys the neighbors. Veterinarians have received considerable desirable publicity in recent years. They have obtained front page pictures and write-ups for removing a needle from a dog's throat, or for saving the life of the President's favored pet. They are found working in coöperation with physicians to protect the public health. This type of publicity is valuable for all of us. But what does the public think of Dr. Jones if he is sued for malpractice, arrested for drunken driving, or if he advertises over the radio that he will give free advice concerning the ailments of pets? This type of publicity is unfortunate for the entire profession.

Put yourself in your client's shoes and treat him as you would want to be treated. So much for human psychology. Everything we do or say has its effect on the people with whom we deal.

Animal psychology is more fascinating than the study of the human mind and reactions. Animals are more sincere and real, and therefore more pleasant. Once an animal is your friend, he is a true friend, not troubled by the petty things which annoy most human friends.

When a patient enters your office, you have to impress it, as well as the owner, in a rather short time. If the patient is a German Shepherd, Chow, or a Fox Terrier, it might be wise to take a little precaution before you pick him up and put him on the examination table.

The expression in the eyes and the movement of the tail tell a story. With experience, one can usually surmise at a glance whether the dog is friendly, shy, snappy, spoiled, or too ill to show any of his peculiarities. Dogs differ in personality as do people, and recognizing certain of these differences may prevent having a tooth put through your hand or hearing the embarrassing remark "The dog doesn't seem to like you."

Too often we attempt to rush our rela-

tions with the patient. A few kind words to the animal, finding out his name, and obtaining the history of the case will give "Rags" time to satisfy himself that everything is all right, and you can examine him from head to foot or clean his teeth and ears without a whimper from him. Dogs are more easily handled on a table than on the floor for the same reason that we would probably not be so apt to invite trouble at a cliff's edge or in the cabin of an airplane as on the ground. They are more easily taken care of when the owner is not around, because he is usually saying something to soothe the animal which in reality only makes it nervous. This also applies in treating an animal in his home where you are trespassing on the property and taking unusual privileges in the house which he guards day and night.

The reason for gaining the patient's confidence is to make him feel at home and in a receptive mood for treatment. Rubbing a dog's ears, a few kind words, and handling him in a manner that gains his confidence probably will shorten the time it takes to treat his ailment. Figure out his peculiarities. If a dog is particularly fond of a certain food which you have on hand, give him a bite after the owner has gone. Should this be repeated several times, you will probably hear the owner say, "They must get good treatment here, as Jerry is always glad to come in."

There is the greatest difference in the requirements for handling cats and dogs. Very gentle handling of cats is essential, even to cleaning the ears. Handle them lightly and stroke under the chin. Never strike a cat if he doesn't do as you want him to do, for he will either jump off the table, scratch you, or be uncoöperative thereafter. As a general rule, it takes more petting and coaxing to obtain a cat's friendship than it does for a dog. Gentleness, a slow approach, and understanding are essential in the successful handling and treatment of cats.

If you can make up with an owner's pet and be about the only one who ever did, then you have gained a lot in the confidence of that owner. This may be the deciding factor in the animal's being left in your care.

This study of the human and animal minds and reactions is indeed fascinating and should be considered more in small animal practice.

Radio and Television Broadcasts at the Atlantic City Meeting

MORE RADIO broadcasts and more televised programs went out across the country from the AVMA annual meeting in Atlantic City last June than had ever been made before at an AVMA meeting. The veterinarians' part in such vital areas as animal health, human health, national defense, research, and community welfare was pointedly covered in these radio broadcasts and televised programs (see table 1).

The profession was featured on three important coast-to-coast chain broadcasts, two by the National Broadcasting Company and one by the Columbia Broadcasting System. In addition, CBS, which serves more than 30 farm stations throughout the nation, transcribed and rebroadcast two programs from the meeting.

Television figured prominently in the convention schedule with broadcasts made by both of the Philadelphia television stations. Dr. C. E. Bild of Miami conducted

the broadcast on WFIL-TV and Dr. Wayne Riser, Skokie, Ill., conducted the one on WCAU-TV.

In addition, a series of farm programs, women's broadcasts, and public interest programs were presented over station WFIL each day of the meeting.

WGN (Chicago), one of the largest stations in the Midwest, sent its farm editor to Atlantic City to prepare transcriptions on a variety of subjects, by speakers and other prominent veterinarians attending the sessions. Thirty-one interviews were prepared at the meeting under the direction of Norman Kraeft, WGN farm director, and these were broadcast subsequently for two months.

As a result of this extensive radio and television coverage, the profession will receive substantial public relations benefits. The subject matter, speakers, stations, and time of broadcasts are shown in table 1.

TABLE 1—Speakers, Stations, Time — Broadcasts Made During the Atlantic City Convention; Also Broadcasts Recorded for Later Use

NATIONAL BROADCASTING COMPANY		
Drs. C. P. Zepp, Sr., and L. A. Corwin, Public affairs program New York, N. Y.		Saturday, June 21 12:30 p.m.
Dr. W. L. Boyd, University of Minnesota Farm and Home Hour Dr. B. T. Simms, Washington, D.C. Dr. T. Childs, Ottawa, Ont. Dr. A. G. Madden, Jr., Cincinnati, Ohio		Saturday, June 23 12:00 to 12:30 p.m.
COLUMBIA BROADCASTING SYSTEM		
Dr. M. R. Clarkson, Washington, D.C. Progress in veterinary science		Saturday, June 21 3:15 p.m.
RADIO STATION WFIL-TV, PHILADELPHIA, PA.		
Dr. C. E. Bild, Miami, Fla. Care of pets		Wednesday, June 25 10:30 a.m.
RADIO STATION WFIL, PHILADELPHIA, PA.		
Dr. Oscar Sussman, Trenton, N. J. Public health		Wednesday, June 18 12:15 p.m.
Dr. W. C. Glenney, Wynnewood, Pa. The veterinarian and his research contributions to health		Thursday, June 19 12:15 p.m.
Dr. T. Lloyd Jones, Guelph, Ont. Personality interview		Tuesday, June 24 1:30 p.m.
Dr. Peter MacKintosh, Yakima, Wash. Brucellosis		Monday, June 23 12:30 p.m.
Dr. J. L. McAuliff, Cortland, N. Y. Shipping fever		Tuesday, June 24 12:30 Noon
Dr. G. E. Cottral, East Lansing, Mich. Range paralysis		Wednesday, June 25 12:30 p.m.
Dr. Henry Van Roekel, Amherst, Mass. Respiratory diseases of poultry		Thursday, June 26 12:30 p.m.
RADIO STATION WCAU-TV, PHILADELPHIA, PA.		
Dr. Wayne Riser, Skokie, Ill. Small animal problems		Monday, June 23 10:30 a.m.

TABLE 1 (continued)—Speakers, Stations, Time—Broadcasts Made During the Atlantic City Convention; Also Broadcasts Recorded for Later Use

RADIO STATION WGN, CHICAGO, ILL.		
Dr. Grant E. Blake, Washington, D.C.	The whole milk test for brucellosis	Sunday, July 13 6:45 a.m.
Dr. Paul Reineke, Michigan State College	Induction of lactation in sterile cows	Monday, July 14 6:30 a.m.
Dr. B. T. Simms, Washington, D.C.	Progress in brucellosis and foot-and-mouth control	Tuesday, July 15 6:00 a.m.
Dr. J. L. McAuliff, Cortland, N. Y.	Hemorrhagic septicemia in cattle (shipping fever)	Wednesday, July 16 6:30 a.m.
Dr. Roy W. Westcott, Michigan State College	Cesarean operation in cows	Thursday, July 17 6:30 a.m.
Dr. Alexander Zeissig, Rahway, N. J.	Will vaccination of dogs control rabies?	Tuesday, July 22 6:00 a.m.
Dr. W. A. Aitken, editor, Journal of the AYMA	Vaccination for control of hog cholera	Sunday, July 20 6:45 a.m.
Dr. B. S. Pomeroy, University of Minnesota	Infectious sinusitis and air sac infection in turkeys	Friday, July 24 6:30 a.m.
Dr. F. B. Young, Waukegan, Iowa	Necrotic enteritis and infectious rhinitis in hogs	Saturday, July 26 6:30 a.m.
Dr. Erwin L. Jungherr, University of Connecticut	The encephalomalacia problem in chicks	Tuesday, July 29 6:15 a.m.
Dr. W. E. LaGrange, University of Pennsylvania	Leptospirosis in farm animals	Wednesday, July 30 6:30 a.m.
Dr. C. H. Cunningham, Michigan State College	Infectious bronchitis and Newcastle disease	Friday, Aug. 1 6:30 a.m.
Dr. Robert Curtis, Portage, Wis.	Practical mastitis control	Monday, Aug. 4 6:00 a.m.
Dr. S. J. Roberts, Cornell University	Vibriosis, a reproductive disease of cattle	Tuesday, Aug. 5
Dr. Frank E. Connor, Morris, Ill.	Beef cattle problems	Wednesday, Aug. 6 6:30 a.m.
Dr. Henry Van Roekel, University of Massachusetts	Chronic respiratory disease of chickens	Thursday, Aug. 7
Dr. George E. Cottrel, East Lansing, Mich.	The enigma of avian leukosis	Friday, Aug. 8 6:30 a.m.
Dr. Richard E. Shope (M.D.), Kingston, N. J.	Diseases common to both animals and man	Monday, Aug. 11 6:30 a.m.
Dr. John W. Walker, University of Pennsylvania	Calfhood diseases	Tuesday, Aug. 12 6:00 a.m.
Dr. D. C. Wood, Greensburg, Ind.	Treatment of genital diseases of the dairy cow	Wednesday, Aug. 13 6:00 a.m.
Dr. R. W. Dougherty, Cornell University	Bloat in cattle and sheep	Wednesday, Aug. 13 6:30 a.m.
Dr. Donald P. Gustafson, Purdue University	Effects of Newcastle disease on the English sparrow	Thursday, Aug. 14 6:00 a.m.
Dr. W. T. Oglesby, Louisiana State University	Treatment of anaplasmosis. Results of testing with aureomycin and terramycin	Thursday, Aug. 14 6:30 a.m.
Dr. E. L. Stearly, Phoenixville, Pa.	Control of brucellosis in Pennsylvania	Friday, Aug. 15
Dr. Arthur D. Goldhaft, Vineland, N. J.	Newcastle disease	Friday, Aug. 15 6:30 a.m.
Dr. J. Clark Osborne, North Carolina State College	Avianized Vibrio fetus vaccine	Saturday, Aug. 16 6:00 a.m.
Dr. A. E. Cameron, Ottawa, Ont.	Farm animal disease control in Canada	Saturday, Aug. 16 6:30 a.m.
Dr. A. M. Orum, Carthage, Ill.	Brucellosis control	Monday, Aug. 18 6:30 a.m.
Dr. E. S. Tierkel, Atlanta, Ga.	Rabies control	To be scheduled later
Dr. John R. Wells, West Palm Beach, Fla.		Monday, July 14
Dr. W. L. Boyd, University of Minnesota		Wednesday, July 16 6:15 a.m.

Report of Group Conferences Held in Atlantic City During the AVMA Annual Meeting, June 23-26, 1952

Meeting of the AVMA Special Committee on Animal Reproduction

If anyone thinks that veterinarians are not interested in the problems of artificial insemination and reproduction they should have attended the meeting at Atlantic City. About 25 veterinarians from at least ten states were present. Discussions continued long after adjournment of the constructive two-hour meeting.

Dr. H. E. Kingman, Sr., was delegated to explore the possibility of having the AVMA invite the International Congress on Reproduction to hold its next meeting in the United States.

The group voted to hold a similar meeting during the AVMA annual meeting in Toronto next year.—S. H. McNitt, *Secretary*.

Conference of Ethics Committees

The AVMA Committee on Ethics met with the ethics committees and co-workers of constituent associations on Monday, June 23, during the Atlantic City annual meeting. Thirteen states were represented. All members of the AVMA Ethics Committee were present.

The reports of several state ethics committees brought out many problems experienced by the various states.

The sale of medicines and veterinary products by veterinarians to laymen was discussed at length, with particular reference to the ethical phase of it. The consensus seems to be that conditions vary in different parts of the country, and that one's conscience should be one's guide. However, a more specific policy or recommendation should be approved by the AVMA for the guidance of its members.

The committee feels that since the licensed pharmacists and drug stores are the recognized channels of distribution of drugs and have been for many years we, as veterinarians, should not antagonize but cooperate with them for the reason that their thoughts on distributions of drugs is quite similar to those of practicing veterinarians. They would like to see a more rigid control of the distribution of drugs by feed stores, creamery stores, hardware stores, etc. No doubt we would gain more by associating ourselves with drug stores than we would lose.

It was also felt that more publicity should be given to the subject of ethics. It is suggested that a column be carried monthly in the JOURNAL on the subject, and as a starter each section of the Code be elucidated and enlarged upon, and that it may lead to a permanent question and answer column on ethical problems.

In reviewing all complaints and suggestions, the

chairman stated that the only way the AVMA committee could make any progress would be to have closer cooperation between it and the constituent committees; that most problems could and should be settled on a local level and promptly reported to the AVMA committee, but that it is essential that all constituent associations appoint permanent ethics committees.—J. A. Winkler, *Secretary*.

Conference of Veterinary Parasitologists

An informal conference of veterinary parasitologists was held on Sunday afternoon, June 22, at the Hotel Chelsea. Sixteen people were present. Topics discussed included: (a) functions of the AVMA Committee on Parasitology; (b) importance of reporting on the incidence and distribution of parasites; (c) course content and examinations in teaching veterinary parasitology; and (d) the desirability of departmental status for parasitology in the veterinary college.

It was decided that a similar conference would be held in 1953 at the Toronto meeting of the AVMA, with the chairman of the AVMA Committee on Parasitology charged with the responsibility of making the necessary arrangements.—W. S. Bailey, *Chairman, AVMA Committee on Parasitology*.

Meeting of Deans of Colleges of Veterinary Medicine

The deans' meeting was held on Sunday, June 22, 1952, with Dean Leasure presiding.

Dr. William F. Holmes, of the Psychological Corporation, reported on the veterinary aptitude test, using illustrated charts to show the correlation of test results with the student's final rank upon graduation. Unless the tests are more extensively used, they will be discontinued. Eight schools indicated an interest in continuing the tests, five were not interested, and three expressed interest in using the test only for applicants not on the campus.

Other subjects discussed were: the need for veterinarians in foreign countries, especially the Latin American countries; support of a program for training students in the field of civil defense; and the need for modernizing courses in pharmacology and therapeutics to keep up with rapid advancement in that field.

A request by the Army Medical Service Graduate School that it be authorized to grant advance degrees in veterinary medicine and in other health service courses was referred to the AVMA Council on Education.

Also discussed were the place of television in

veterinary medical education and the possible need for training lay inspectors for the dressed poultry industry.

Re-elected for another year were Dr. Leasure as chairman and Dr. A. H. Groth as secretary.—*A. H. Groth, Secretary.*

Meeting of the American College of Veterinary Pathologists

The American College of Veterinary Pathologists met on June 23 in the Ambassador Hotel, with Dr. Hilton Smith, president, presiding. Seventeen members were present. The Council reported that certificates were being prepared for the following new members who had successfully completed the requirements and examination for certification: Drs. R. T. Habermann, J. H. Rust, L. Z. Saunders, J. H. Sautter, G. R. Spencer, and D. M. Trotter.

The results of a survey made of the membership concerning the location of the annual business meeting was discussed at length, following which it was voted to hold the next meeting at the time of the seminar in Chicago which is scheduled for November 28, 1952, since more members would be in attendance. It was agreed that the Council, with other members invited, should hold a meeting at the time of the next American Veterinary Medical Association meeting. The membership approved the action of the Council to hold the next examination in Chicago at the time of the annual seminar. This histopathology seminar on interesting cases submitted by the membership is open to members only.

An amendment to the by-laws was proposed and approved which would permit the president to call both special and regular meetings with the approval of the Council. A nominating committee was appointed consisting of Drs. R. A. Runnells, A. G. Karlson, and D. L. Coffin.—*W. T. S. Thorp, Secretary.*

Conference on Laboratory Animal Care

Thirty-four veterinarians attended the initial meeting of those interested in the care of laboratory animals, held June 23, at the Ambassador Hotel in Atlantic City.

There are an increasing number of veterinarians employed by medical schools and medical research institutions to manage animal quarters. The responsibilities and opportunities in this field, not only as far as the individual, but also as far as the veterinary profession as a whole is concerned, are not to be ignored. The gaps in our knowledge of the laboratory animal is a challenge that should decrease as we exchange information and highlight those areas that require further exploration.

The management of animal quarters includes construction and remodeling problems, problems of animal procurement, personnel problems, and

public relations, as well as those of breeding, nutrition, sanitation, and disease prevention. There was lively discussion at the meeting as to the area of interest with which the group should be concerned.

A program is to be prepared for the Sunday preceding the week of the regular AVMA meetings in Toronto in 1953 by the three elected officials. The officials elected were: Dr. N. R. Brewer, University of Chicago, chairman; Dr. Mark Morris, Topeka, Kan., vice-chairman; and Dr. W. T. S. Thorp, National Institutes of Health, Bethesda, Md., secretary.

Interested parties are invited to correspond with the program committee.—*N. R. Brewer, Chairman.*

Meeting of the American Association of Veterinary Physiologists and Pharmacologists

A brief meeting of the American Association of Veterinary Physiologists and Pharmacologists was held at Atlantic City, June 24, 1952, during the annual convention of the AVMA. The meeting was devoted to discussion of three proposed constitutions for the Association. Final selection of a constitution was deferred until the next annual meeting, which will be held during the summer of 1953.

The newly elected officers for the 1952-1953 term are Dr. Clyde F. Cairy, president, and Dr. B. V. Alfredson, secretary.—*D. K. Detweiler, Chairman.*

Meeting of the National Society of Phi Zeta

The meeting of the national society of Phi Zeta on June 22, 1952, in the Ambassador Hotel at Atlantic City was presided over by the vice-president, Dr. L. C. Ferguson of Ohio State University. An annual award to senior students for the best dissertation on a given topic was discussed.

The Society voted to elect its officers at the annual meetings in odd numbered years. There were 14 members present.—*E. A. Hewitt, Secretary.*

Conference on Veterinary Radiology

There were 38 veterinarians in attendance at the second annual group conference on veterinary radiology at Atlantic City. Dr. N. B. Tennille acted as chairman in the absence of Dr. W. C. Banks. The interest in the safety factors in the use of radioactive materials was considered at length. There was also considerable interest in the fundamental aspects of radiological procedures. The emphasis of this meeting might be said to be that more time and attention should be given to papers and training in basic radiography at our meetings, with the constant stressing of safety. It was decided to have a conference meeting again next year in Toronto, during the AVMA annual meeting. Dr. Tennille, Oklahoma A. & M. Col-

lege, was elected chairman for the coming year and Dr. W. C. Banks, Texas A. & M. College, was elected secretary. Faculty members met to consider radiological problems in the schools. It is planned that men teaching radiology will meet each year to consider the specific problems in their field.—*N. B. Tennille, Chairman.*

Meeting of American Association of Veterinary Anatomists

The American Association of Veterinary Anatomists held its annual meeting on June 24, 1952, at the Ambassador Hotel in Atlantic City. Sixteen members, representing the anatomy departments of nine veterinary schools, attended the meeting. Dr. V. R. Brown, of Ontario, president of the association, conducted the meeting.

In addition to reports from the membership and nomenclature committees, several problems concerning the teaching of anatomy were discussed. Dr. M. E. Miller, of Cornell University, discussed the advantages of using the dog as the basic disector animal. Dr. J. D. Grossman, of Ohio State University, presented pertinent reasons for utilizing the horse. The ensuing discussion was moderated by Dr. J. H. Ballantyne, of the Ontario Veterinary College.

Dr. R. E. Habel, Cornell University, discussed the organization of the course in applied anatomy as given at Cornell in the junior year of the curriculum.

Officers for the ensuing year are Drs. L. E. St. Clair, president; R. W. Brown, president-elect; and Donald G. Lee, secretary-treasurer.—*Donald G. Lee, Secretary.*

Annual Meeting of Women's Veterinary Medical Association

The sixth annual meeting of the Women's Veterinary Medical Association was held on Monday, June 23, at the Ambassador Hotel in Atlantic City. Fourteen women veterinarians were in attendance.

Dr. M. Lois Calhoun was elected president for the ensuing year. The other officers elected were Dr. Patricia O'Connor, secretary; Dr. Estelle Hecht Geller, eastern vice-president; Dr. Ruth M. Eagle, central vice-president; Dr. Maria Parajon of Havana, Cuba, southern vice-president, and Dr. Barbara S. Snow, western vice-president.

The committee on the W.V.M.A. annual award recommended, and the assembly passed, the award of \$50 to Dr. Mary K. Dunlap in recognition of her initiative and splendid efforts in organizing the women veterinarians.

Dr. Margaret W. Sloss proposed that a contribution of \$100 be made to the student loan fund of the Women's Auxiliary to the AVMA and stipulate that, when allocating this contribution, a woman be given preference. The organization is also making a \$100 contribution to the AVMA research fund.

Dr. O'Connor presented the very interesting publicity scrapbook of newspaper and magazine clippings concerning activities of all women veterinarians. Statistical data on women veterinarians have been compiled and are available for use in preparing talks, radio interviews, or magazine articles.—*Margaret W. Sloss, Secretary.*

Meeting of the National Association of Federal Veterinarians

A meeting of the National Association of Federal Veterinarians at Atlantic City found 45 members in attendance. The principle discussions concerned the report by the secretary-treasurer of the actions of the AVMA House of Representatives to which he was a delegate. Among the items discussed were the grade and pay of federally employed veterinarians, the entrance rank and induction pay of Veterinary Corps officers of the Armed Forces, ceiling prices for veterinary services, and the research laboratory on foot-and-mouth disease and other exotic animal disease plagues.—*L. T. Hopkins, Secretary.*

Meeting of Zoo Veterinarians

Approximately 35 attended the seventh annual meeting of the zoo veterinarians in Atlantic City on June 24, 1952.

Dr. Herbert L. Ratcliffe described the lesions of avian hepatitis in various species of birds in the Philadelphia Zoo and the results from the use of a prophylactic vaccine.

Dr. Lester Fisher described the autopsy findings in the famous 21-year-old gorilla "Bushman" which died at the Lincoln Park Zoo in Chicago. A complete report of the cause of his death is expected to be published at a later date.

Dr. I. Altman talked informatively on the care and treatment of cagebirds and demonstrated his method of splinting fractures in birds.

Drs. W. K. Appelhof and D. A. Schmidt described the installations in the new hospitals at the Detroit and Brookfield zoos, respectively.

Dr. David L. Coffin, recently returned from South America, showed slides of psittacine birds, their natural habitats in the jungles of Peru, and evidences of various diseases.

Dr. Charles Rife reported on an eversion of the bladder through the urethra in the 6-month-old female Humboldt's woolley monkey in the Atlanta Zoo.

Dr. J. A. Campbell described the recovery of a 27-year-old Polar bear from pronounced inanition and loss of coordination following the intravenous injection of 1/10 gr. of strychnine sulfate. Milk fever in a Pere David's deer two weeks following parturition responded to intramuscular injections of calcium gluconate.

Dr. Sidney Michael reported on a pheochromocytoma in a mountain lion in the zoo at Erie, Pa.

Veterinarians who wish to have their names

placed on the mailing list to receive copies of the zoo case reports may contact Patricia O'Connor, D.V.M., Staten Island Zoo, Staten Island 10, New York.—*Patricia O'Connor, Secretary.*

Conference of Editors

The 1952 editors' conference at Atlantic City was the largest since the first one convened in Detroit in 1949. Forty-three editors were present, including an editor of Dorland's "American Illustrated Medical Dictionary." Dr. H. Preston Hoskins, editor of the *North American Veterinarian*, was chairman of the conference.

The following speakers discussed the general subject, the scope and field of veterinary journals: Mr. J. L. Ruebel, editor of the *Fort Dodge Bio-Chemical Review* and Dr. A. H. Quin, editor of the *Jen-Sal Journal*, discussed the subject from the point of view of the house magazines; Dr. A. G. Misener, editor of the *Illinois Veterinary Bulletin* and Miss J. S. Halat, secretary of the New York State Veterinary Medical Society which publishes *Veterinary News*, covered the subject from the point of view of constituent association journals.

Dr. J. G. Hardenbergh, executive secretary of the AVMA and managing editor of AVMA publications, reported on the survey made by the AVMA on student publications. A fuller report of the meeting will be published in the "Proceedings Book."

Meeting of State Veterinarians

On Tuesday evening, June 24, state veterinarians from 20 states met in the Ambassador Hotel and discussed the outbreak of anthrax that had occurred in the nation. They also discussed the status of the proposed legislative bill which would provide legal authority for the U. S. Bureau of Animal Industry to work in conjunction with the U. S. Public Health Service and the U. S. Wildlife Service in the control and eradication of rabies, in cooperation with the respective states.—*H. G. Geyer, Secretary.*

Meeting of American Board of Veterinary Public Health

The third annual meeting of the American Board of Veterinary Public Health was held in Atlantic City during the AVMA convention. Among the items of business was arranging for examination of applicants. Dr. Frank A. Todd, president of the board, has announced that the next examination will be held in Oct., 1952, in connection with the annual meeting of the A. P. H. A. in Cleveland, Ohio.

Drs. E. R. Price and Robert F. Willson were elected as councilors for the 1952-1955 term.

The American Board of Veterinary Public Health was incorporated under the laws of the District of Columbia in February, 1950. The

principle objectives of the board are (1) to further the educational and scientific progress in the specialty of veterinary public health and to encourage education, training, and research in veterinary public health; (2) to establish standards of training and experience for qualification of specialists in veterinary public health; and (3) to further the recognition of such qualified specialists by suitable certification.

The American Board of Veterinary Public Health has been formally recognized and approved by the AVMA, and its requirements for certification have been approved by the Council on Education and the House of Representatives of the AVMA.

Persons interested in the prerequisites for examination and the requirements for certification should write to the secretary, Dr. Benjamin D. Blood, 6315 Utah Ave., N. W., Washington 15, D.C.

American Animal Hospital Association Midseason Meeting

The American Animal Hospital Association held its annual midseason business meeting at a luncheon at the Hotel Ambassador, Atlantic City, during the AVMA annual meeting. Sixty-seven members were present. President Myron A. Thom, Pasadena, Calif., presided.

Dr. George W. Mather, chairman of the Program Committee, reported on the program plans for the forthcoming meeting to be held at the Hotel Radisson, Minneapolis, Minn., May 6-9, 1953. Another outstanding program is being planned for the 1953 meeting.

Other activities for the year which were under discussion included the establishment of a speakers bureau composed of members of the AAHA, who would appear before the student bodies of the various veterinary schools to discuss subjects pertinent to small animal medicine. It was proposed that three speakers be made available to each school for the coming year.

Five new members were voted to active membership.—*Wayne H. Riser, Secretary.*

Meeting of the American Veterinary Exhibitors Association

The American Veterinary Exhibitors Association held their annual dinner and business meeting at the Ambassador Hotel in Atlantic City, Sunday evening, June 22, 1952.

We were favored with a talk by Dr. John Hardenbergh, executive secretary of the AVMA, who outlined future meetings of the AVMA. Dr. Hardenbergh introduced Mr. T. H. R. McNally, secretary of the Toronto Convention and Tourist Association, Inc., who outlined in full to exhibitors the details concerning next year's AVMA meeting, which will be held in Toronto, Ont.

At the business meeting, the following members of the executive committee for 1952 were

elected: Walter E. Schwarz, of Wilson & Co., Inc., Chicago, president; Dr. R. J. Harris, The S. E. Massengill Co., Bristol, Tenn., vice-president; Dr. E. C. Kandel, Arnold Laboratories, Newcastle, Ind., secretary-treasurer (since that date Dr. Kandel has resigned from this office and Dr. R. H. Hollis, Abbott Laboratories, North Chicago, has been elected by the executive committee to fill this position); Frank E. Bickal, Fort Dodge Laboratories, Inc., Fort Dodge, Iowa; and Mr. C. M. McCallister, Jensen-Salsbery Laboratories, Kansas City, Missouri.

Advisory trustees are Dr. J. L. Davidson, The Upjohn Co., Kalamazoo, Mich., and Dr. E. C. Jones, Norden Laboratories, Lincoln, Neb.

The members voted to donate \$500 to the Research Fund of the AVMA and instructed Frank E. Bickal, president of the association, to present this check to the president of the AVMA, Dr. John R. Wells.

The members of the American Veterinary Exhibitors Association went on record to continue drawings for an award to the lucky veterinarian and veterinarian's wife during future AVMA conventions.—*Frank E. Bickal, Secretary.*

Meeting of Alpha Psi Fraternity

Alpha Psi fraternity wishes to thank the AVMA for arranging space on the program to hold our fraternity dinner.

We had a very pleasant evening with 175 present. Every chapter from Pullman, Wash., to Auburn, Ala., was represented.—*E. T. Booth.*

Alumni Dinner Meetings

Alabama Polytechnic Institute

Seventy A.P.I. alumni and guests enjoyed a dinner meeting held at the Hotel Ambassador in Atlantic City on June 25, 1952. The late Dr. I. S. McAdory presided. Dr. Fletcher L. Vinson served as local chairman.

Following the dinner, each alumnus and guest was introduced. A telephone conversation with Dean Sugg from the banquet room revealed that he was home from the hospital. After singing "Glory, Glory to Old Auburn," the meeting adjourned to attend the president's reception.—*W. S. Bailey.*

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Iowa State College

About 80 persons attended the Iowa State alumni dinner at the Ritz-Carlton Hotel on the evening of June 25, 1952. Dr. W. C. Glenney of Ardmore, Pa., presided. After the dinner all present were asked to identify themselves. Then Dr. I. A. Merchant, who succeeded Dr. H. D. Bergman as dean on September 1, gave an excellent account of the present status of the veterinary college and of his hopes and plans for the future.—*W. A. Aiken.*

Kansas City Veterinary College

The dinner of the K.C.V.C. Alumni Association in the Chelsea Hotel in Atlantic City was attended by 25 alumni and 12 ladies. Dr. W. M. Coffee, Dr. Carl F. Schlottbauer, and Dr. Joseph M. Arburua were guests.

The following officers were elected for the current year: Dr. Joseph E. Weinman (KCVC '13), Columbia, Mo., president; Dr. William T. Scarborough (KCVC '17), Raleigh, N. Car., vice-president; and Dr. Chas. D. Folse (KCVC '10), Kemah, Texas, secretary-treasurer-editor.

The association completed arrangements for the publication of a roster of alumni to contain a history of the college, a sketch of each alumnus by classes, and other information which should be recorded.—*Charles D. Folse, Secretary.*

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Michigan State College

A dinner meeting of the Michigan State College alumni was held at the Hotel Ambassador in Atlantic City the evening of June 25, 1952. The weather was extremely warm which fortunately did not affect the spirits of those present. A total of 258 people were present, about one third of which were ladies.

President John Foley led the affair in a most affable manner and kept the ball rolling effectively. Reports were made, viz.: H. J. Stafseth on a memorial plaque which has been given by the Veterinary Public Health Association memorializing the late Dean C. S. Bryan; C. F. Clark reported on the status of a memorial fund also in memory of Dr. Bryan and a bronze bas-relief now being manufactured in Cincinnati.

The entertainment was provided by Miss Gloria Chapman who sang some songs parodizing various people present. Several stunts were pulled on faculty people by enthusiastic graduates. All in all, it was a typical M.S.C. alumni ~~out~~ together, informal, and with a great spirit of fellowship.—*C. F. Clark.*

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Ohio State University

The annual meeting of the Ohio State University Veterinary Alumni Association was held on June 25 at the Chelsea Hotel. Approximately 250 graduates and guests attended the banquet and short program which followed. President R. A. Hendershott ('17) presided, and introduced Dean W. R. Krill who presented a short resumé of what has transpired at the College during the last few years as well as the high hopes for what the future may bring. He stated that the "powers that be" hope to obtain sufficient funds during the next legislative session to construct new veterinary buildings.

Dr. O. Norling-Christensen ('32) Wilmette, Ill., president of the Ohio State University Chicago Alumni Association, spoke on behalf of the Ohio State University Association, citing its accomplish-

ments and the hope that those veterinary graduates who are not active members will become active in the near future.

The following officers were elected for 1952-1953: Dr. J. L. Putnam ('31), Pittsburgh, Pa., president; Dr. J. T. Burriss* ('31), Columbus, Ohio, vice-president; Dr. F. J. Kingma ('38), Columbus, Ohio, secretary-treasurer.

The meeting was concluded with the showing of Mike Peppe's "Diving Dynasty" film and also the film entitled "Highlights of Football in 1951."—F. J. Kingma, Secretary.

*Dr. Burriss died Aug. 4, 1952.

Ontario Veterinary College

Over 100 alumni of the Ontario Veterinary College and their wives attended a successful alumni dinner on June 25 at the Ritz-Carlton Hotel during the AVMA convention in Atlantic City. Dr. A. G. Misener, of Chicago, was chairman of arrangements. A word of greeting was given by Dr. A. E. Cameron, Ottawa, president of the O.V.C.

alumni association, and greetings from the College were voiced by Principal T. L. Jones.

Great interest was shown in the fact that the AVMA convention will be held in Toronto in July, 1953. It was expected that the alumni would be well represented from all over the United States and Canada at the 1953 meeting. This will also give graduates an opportunity to revisit their alma mater.—T. Lloyd Jones.

University of Pennsylvania

Among the highlights of each AVMA convention are the alumni get-together dinners. In years gone by we looked forward to the annual AVMA banquet but now, due to the size of the organization, such a banquet would be impossible.

We have a record of all of our University of Pennsylvania alumni meetings since September, 1939, at Memphis, which shows an increase each year. The alumni meeting at Atlantic City this year more than doubled any previous year. Our attendance was 403. We hope our next meeting will meet with cooler weather.—E. T. Booth.

Mexican Aftosa Quarantine Lifted

As was predicted last March, the Mexican border was opened at midnight of Aug. 31, 1952, for the movement of cattle and other animals into the United States. No aftosa (foot-and-mouth disease) has been found in Mexico for over a year. The last outbreak, which was quickly stamped out, had been at Nautla, Vera Cruz, on Aug. 12, 1951. The quarantine had been in force since Dec. 31, 1946, when the Mexican border was closed to cattle, sheep, goats, swine, and fresh meat because aftosa had been definitely diagnosed in the vicinity of Vera Cruz in southeast Mexico. The disease had come, months earlier, with two shipments of Zebu cattle from Brazil, whose entry had been vigorously protested by U. S. officials (see JOURNAL, March, 1947).

To handle the grievous situation, the Mexico-United States Commission for the Eradication of Foot-and-Mouth Disease was set up and became operative on April 10, 1947. It was abolished Aug. 31, 1952. A new, smaller joint commission will carry on in the 13 Mexican states which were in the original quarantine area. The Palo Alto laboratory will be maintained for making differential diagnoses.

During the five years of the commission's operation, nearly 435 million cattle had been inspected—nearly half as many inspections as there are cattle in the whole world. The quarantine area had covered

220,000 square miles—about 28 per cent of Mexico, and it extended from sea level to Mexico's highest peak—18,546 feet. Nearly a million animals had been slaughtered and 60 million doses of vaccines had been used. The vaccines had been produced in laboratories set up in Mexico.

The peak of personnel employed by the commission was in December, 1949,—8,061 persons. They have now organized and trained 10,000 vigilance committees with 195,000 members to report any sick animals to the new commission. More than 29,000 mules and 287 tractors were exchanged for oxen which had to be slaughtered during the campaign.

Since July, 1949, tissue samples from 1,022 suspected cases were given laboratory and biological analysis. Of these, 586 were analyzed as vesicular stomatitis (335 New Jersey type and 183 Indiana type), 405 as negative, and 31 as aftosa. The total cost of the campaign was about \$85 million.

With importations resumed, authorities predict that the number of feeding cattle will be about the same as in pre-quarantine years (400,000 to 500,000).

On Aug. 19, 1952 Canada was declared free of aftosa and restrictions on the movement of livestock in Saskatchewan were removed.

SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

Tarsometatarsal Arthrodesis in a Cow

RALPH GANIS, D.V.M.

Gordon, Nebraska

After being hit by a tractor, a 6-year-old purebred Holstein-Friesian cow was found to have about a thirty-degree lateral deviation of the leg distal to the left tarsometatarsal joint. The diagnosis was loss of

at 15-lb. pressure for twenty minutes in a pressure cooker.

With a 3/16-in. bit in a hand brace, two holes were drilled through the os calcis and two through the metatarsus. Kirschner pins (3/16 in.) were inserted and Kirschner clamps and bars were applied as shown in figure 2. Three million units of penicillin in oil were given intramuscularly.

After three weeks, the leg began to angulate and the gear was removed at the fourth week. A temporary splint of boards and tape was applied but it gave no real support.

Between the fifth and sixth weeks after injury, the arthrodesis operation was performed. Over a six-hour period, 550 cc. of the chloral hydrate-magnesium sulfate mixture and 75 cc. of 1 per cent pentobarbital were given. After preparing the area, the tarsometatarsal joint was opened by a 2-in. incision. A heavy blade, a curette, and a file previously sterilized were used to denude the joint surfaces of cartilage.



Fig. 1—The cast covering the fixation gear as applied the second time.

medial ligamentous support. The cow had been bred about six weeks previously.

Using Warren-Teed intravenous tubing, 500 cc. of a mixture of 12 per cent chloral hydrate and 6 per cent magnesium sulfate, and 33 cc. of 1 per cent pentobarbital sodium were given over a four-hour period. The area from the middle of the tibia to the fetlock was prepared with a depilatory paste, soap and water, and 70 per cent alcohol. The instruments had been sterilized



Fig. 2—Fixation gear a few days after the first installation.

Dr. Ganis is a practitioner in Gordon, Neb.

Aqueous penicillin, 200,000 units, and tincture of iodine, 2 cc., were deposited in the joint. Two tibial and two metatarsal pins were placed and Kirschner clamps and bars were applied. For a cast, 30 rolls of 5-in. "specialist" brand plaster of paris were used both under and over the pins, bars, and clamps (fig. 1). Three million units of penicillin in oil were given.

The cow wore the cast for three months during which time she carried the leg when walking. The cast and the fixation bars were then removed; three weeks later, the pins and clamps were removed without anesthesia. The pins were washed and swabbed with alcohol and with penicillin-streptomycin udder ointment before being removed.

There was very little skin damage, pin discharge, or bone enlargement. Neither appetite nor milk production were impaired during treatment. At the present time, seven and one-half months from the date of injury, the cow is walking well and is expected to calve soon.

Virus Abortion in Mares

Dr. E. R. Doll, University of Kentucky, recently made a progress report on research conducted on equine virus abortion. Since September, 1951, blood samples have been collected from over 1,300 broodmares and other horses on farms where virus abortion had occurred. Complement-fixation tests indicate that the infection is common, suggesting that abortions occur only when other conditions also are favorable for it.

The incubation period for the disease is sixteen to sixty-seven days and abortions are most likely to occur from two to eight weeks before the end of the gestation period. Vaccination of the mares with a vaccine prepared from the tissues of aborted fetuses is considered the best present method of combating the disease.—*Blood Horse*, June 28, 1952.

The surgical removal of cancer in the lung has been made easier by a new operation perfected in dogs. The healthy lung is disconnected and attached higher in the windpipe, thus allowing the surgeon to do a more extensive removal of the cancerous area.—*Bull. Nat. Soc. for M. Res.*, March, 1952.

Carcinoma of the Stomach of a Dog with Metastases

GEORGE LEVY, D.V.M.

Bronx, New York

Malignant epithelial tumors in the dog are by no means rare, and Feldman,¹ Mulligan,² and Willis³ have described in detail those that are more frequently encountered, especially in older dogs. It is apparent that



—Armed Forces Institute of Pathology

Fig. 1—Ulceration and neoplastic invasion of gastric mucosa, and diffuse infiltration of submucosa. $\times 29$.

the incidence of carcinomas increases in older dogs as it does in man. The skin and mammary gland are probably the structures most commonly involved in the dog, although carcinomas have been described in many other locations, including pharynx, larynx, the oral cavity, and the accessory organs of the gastrointestinal tract, such as the liver and pancreas.

Carcinomas of the stomach are rare in domesticated animals, particularly the dog. Mulligan² states that fewer than 10 cases are on record. Feldman quotes Friedenberg and Frohner, who observed only 1

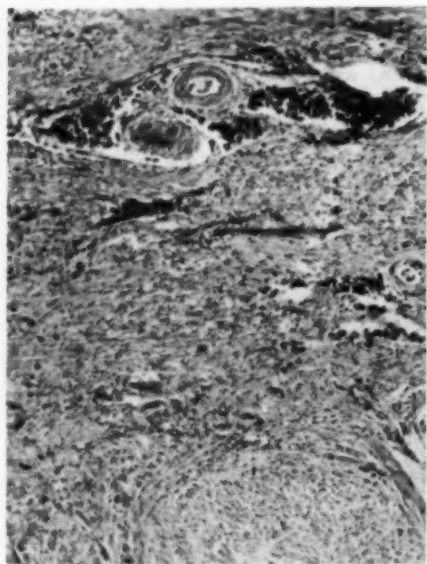
Dr. Levy is a practitioner in Bronx, N. Y.

The author gratefully acknowledges the assistance of the Armed Forces Institute of Pathology for the diagnosis of the case, photographs, and report.

case of carcinoma of the stomach in 70,000 dogs examined. Davis and Naylor,⁴ in 1943, reported a gastric carcinoma with no metastasis in a dog and surveyed the literature in the same article. They cited a case

hours after the onset of the hemorrhagic symptoms.

An autopsy was performed and the following gross pathological changes were observed:



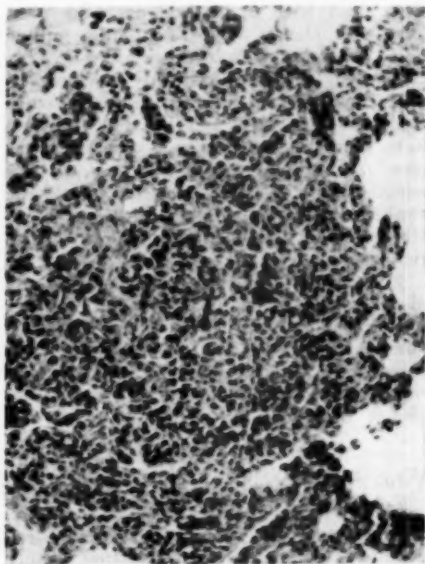
—Armed Forces Institute of Pathology

Fig. 2—Vascular invasion by neoplastic elements in gastric submucosa. $\times 90$.

of Reddick and Willis, in which metastasis was found in a regional lymph node only, and also Rubarth's case in which a tumor originated in the mucosa of the pylorus and diffusely infiltrated the wall of the stomach without giving rise to metastasis. Since these neoplasms are so rare, it is considered of value to record another case of carcinoma with metastasis, even though there was moderate postmortem autolysis in some of the organs.

CASE REPORT

An 8-year-old female Irish Setter had lost weight and had vomited occasionally over a period of several months. Suddenly she began to bleed from the gingivae of the canine teeth and petechiae appeared in the oral mucosa. Anticoagulants, thromboplastin, and vitamin K were used therapeutically to no avail. The dog died twelve



—Armed Forces Institute of Pathology

Fig. 3—Metastatic focus in lung. $\times 170$.

Frank hemorrhage was present in the trachea and paint brush hemorrhages in the submucosa of the trachea. The tissues surrounding the bifurcation of the trachea were stained with blood. The lungs were pale. The right ventricle of the heart was dilated and there were yellow foci in all of the auricles and ventricles. The spleen was enlarged. The liver was friable and had a nutmeg appearance. Petechiae were present beneath the oral mucosa. The stomach contained about 300 cc. of fresh blood. An ulcerated area was observed in the cardiac region and ecchymosis in the jejunum. The capsule stripped from the kidneys with some difficulty. Petechiae were observed in the bladder. The diagnoses on the basis of the gross features were gastric ulcer and hemorrhagic purpura.

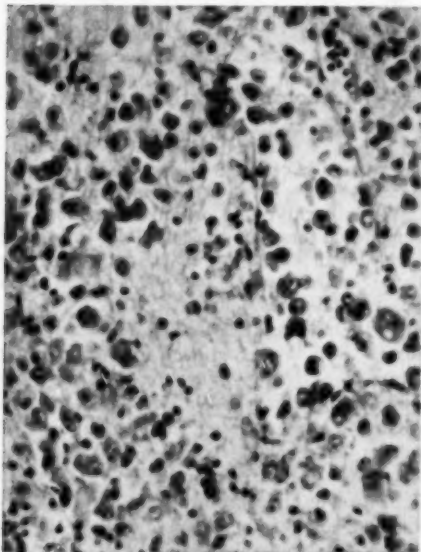
Sections of the various organs were sent

to the Armed Forces Institute of Pathology for histopathologic examination. The report on this case (AFIP Accession 303335) follows:

Stomach.—Advanced postmortem autolysis was present in the sections, somewhat obscuring the

ach, except that they were perhaps even more bizarre. In some areas, these neoplastic masses were undergoing sclerosis. Vascular invasion again was recognized in numerous areas. The endocardium was distinctly thickened and some hemorrhage was observed immediately beneath it. There was extensive hemorrhage beneath the epicardium. Scattered throughout the entire myocardium were groups and nests of bizarre cells similar to those in the stomach.

Lung.—Metastatic foci were recognized in the pulmonary parenchyma. One of the foci which lay immediately beneath the pleura was small but not circumscribed. Several vessels contained neoplastic cells.

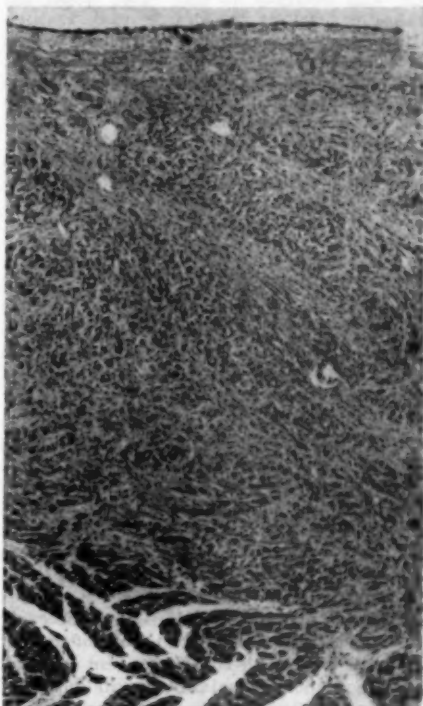


—Armed Forces Institute of Pathology

Fig. 4—Massive neoplastic invasion of spleen. $\times 355$.

cellular detail of the mucosa. An ulcerated area was recognized in which the mucosa was completely lacking, and the submucosa contained a heavy infiltration of lymphocytes. At the periphery of this ulcer, there was invasion and replacement of the mucosa by neoplastic elements composed of large bizarre cells with an abundant eosinophilic cytoplasm and large nuclei. Some of the nuclei were intensely hyperchromatic; others contained very prominent nucleoli. There was moderate infiltration of plasma cells and lymphocytes in this area. Nests of the same bizarre neoplastic cells were observed in the submucosa. Vascular invasion was prominent and numerous neoplastic cells were noted in several vessels. There were occasional small clusters of neoplastic cells in the muscularis. The picture was essentially that of a crater, with its walls made up of neoplastic elements which have infiltrated the tissues beneath and surrounding the crater.

Heart.—There was massive invasion of the myocardium by neoplastic masses which completely obliterated the normal histological structure. The neoplastic cells were similar to those in the stom-



—Armed Forces Institute of Pathology

Fig. 5—Massive neoplastic invasion of myocardium with a sclerosing effect. $\times 70$.

Spleen.—The organ was engorged with blood to a point that obscured the normal splenic architecture. There was marked lymphoid atrophy. The pulp was diffusely invaded by large bizarre neoplastic cells throughout the entire sections. Similar cells were recognized in numerous vessels. Some nucleated erythrocytes and an occasional mitotic figure were also observed. The neoplastic

cells contained rather abundant eosinophilic cytoplasm and large nuclei, and were distinctly epithelial in appearance.

Kidney.—Occasional small interstitial metastatic foci observed in the cortex were made up of cells similar to those already described. Foci of interstitial lymphocytic infiltration were also present.

Other Organs.—A few submucous hemorrhages were recognized in the small intestine, but no significant lesions in the esophagus and large intestine. There were some submucous hemorrhages in the trachea.

The vessels of the bladder submucosa were dilated and engorged with blood.

Diagnosis.—Anaplastic carcinoma of the stomach, with metastases to lung, heart, spleen, and kidney.

Comment.—A mucicarmine stain of the sections of stomach revealed that the neoplastic cells in the walls of the ulcer, in the neoplastic nests in the submucosa, and in the vessels of the submucosa were secreting mucin.

The hemorrhagic syndrome observed is occasionally encountered in carcinoma of the stomach in man and is believed to be due to thrombocytopenia.

DISCUSSION

This case of carcinoma of the stomach conforms to the lesion that Willis described as ulcer-like carcinoma with prominent or well-defined borders, but with diffuse infiltration of the neighboring stomach walls and with extensive metastases to many of the integral organs. Whether an ulcer preceded the carcinoma in this case is a matter for speculation. This question has been studied by numerous workers, but there is no conclusive evidence that an ulcer generally precedes carcinoma of this type. Willis⁴ states that he has examined many hundreds of gastric ulcers and carcinomas but has seen only three examples of unequivocal ulcer-cancer. He also quotes Deibel who, from careful study of 33 early gastric carcinomas in man, concluded that in only two of these (6 per cent) did all of the evidence sustain the diagnosis of ulcer-cancer.

SUMMARY

A case of carcinoma of the stomach in a dog with metastases to the heart, lungs, spleen, and the kidneys has been presented. The neoplasm had the gross appearance of the hemorrhagic ulcer which was found in the cardiac region. Microscopic examination confirms the fact that this is a case of carcinoma of the crater or ulcer type.

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Paracolon Abortion in Ewes

J. F. RYFF, D.V.M., AND JO BROWNE, D.V.M.

Laramie, Wyoming

While paratyphoid organisms are usually considered one of the possible causes of abortion in ewes, the exact identity of the organism responsible has not been too often described in this country.¹

In the spring of 1951, 3 weak or stillborn lambs were submitted dead to the Wyoming State Veterinary Laboratory. They appeared premature but no other changes of significance were noted. From the heart of one a Salmonella-like organism was recovered. This was submitted to Dr. Philip R. Edwards, in charge of the Enteric Bacteriology Laboratories, Public Health Service, U. S. Federal Security Agency, who identified it further as diphasic Arizona paracolon 026,H29-30, with a note that the diphasic Arizona paracolons appear to be definite pathogens.

Subsequently, the ranch from which the lambs had originated was visited. At this time, 11 head of 252 ewes had aborted, with the fetuses varying from very premature to nearly full term; a few normal lambs had been dropped. The aborting ewes had been noted to have a profuse, persistent, genital discharge. A swab of this exudate from a ewe supplying one of the lambs examined failed to allow the recovery of any significant organisms although, as the ewes were fed under feedlot conditions with access to a small pasture for exercise, the discharge may have been responsible for some spread of the infection. A limited trial with streptomycin seemed to have little effect in curtailing the discharge.

From the Wyoming State Veterinary Laboratory, Laramie.
¹Newson, I. W.: Sheep Diseases. Williams and Wilkins Co., Baltimore, Md., (1952): 78.

A Case of Hydrops Amnii Successfully Relieved by Cesarean Section

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On March 24, 1952, I was called to see a 6-year-old grade Jersey whose exact freshening was not known. The cow was developing an excessively large abdomen and my client at first thought she was carrying twin calves but now doubted it. He had recently increased her ration considerably since she was losing flesh. She finally quit eating and could hardly rise when reclining.



Fig. 1—A posterior view of the cow showing the hernia which was not discernible before surgery.

The fetus could be detected neither by ballottement nor by rectal palpation, so greatly was her uterus distended with fluid. An immediate cesarean section was done.

The surgery was performed through the left flank with the cow standing. Paravertebral and local anesthesia were used. It proved to be a right horn pregnancy. Moving the distended horn to the left flank incision was difficult. Without considering the danger of shock, due to loss of internal pressure, a liberal incision was made in the uterus which let the liquor amnii escape rapidly. The calf, which was normal in size and appearance but two to four weeks

premature, lived only a few minutes. A monstrosity was expected since an exceptionally hydrocephalic calf was found in an earlier hydrops amnii case that went to term. The firmly attached placenta was not disturbed and having no catgut, the uterus was closed with a linen suture. When starting to suture the abdominal wall, it was noticed that the peritoneum and musculature at the posterior edge of the incision was exceptionally loose. Investigation revealed a longitudinal rupture of the peritoneum and muscle wall 3 to 4 in. behind and parallel to the incision. The resulting hernia was not noticed until the abdominal wall had been sutured with through and through mattress tape sutures.

The postoperative treatment consisted of 40 mg. of stilbestrol and 2,400,000 units of penicillin in oil intramuscularly.

Having noticed the item on hydrops amnii in the April AVMA JOURNAL (p. 189), I went to the farm on April 3, removed the



Fig. 2—The hernia and incision following removal of sutures.

sutures, and took the photographs (fig. 1 and 2). The highlights of the case were as follows:

- 1) The site for surgery was prepared by clipping with Oster small animal clippers using the surgical blade No. 40.

- 2) No shock resulted from the sudden loss of internal pressure.

- 3) The through and through mattress sutures used in closing the abdomen were satisfactory. On May 11, the cow was re-

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ported to be gaining weight daily. She will be marketed in the fall.

4) A right flank incision would have been more practical.

New Anesthetic Technique.—Dyce and others report a new general anesthetic technique for the horse, with special advantages for taking x-ray pictures of the body or upper limbs. They adapted the cyclopropane-oxygen anesthetic method by devising a specially cuffed endotracheal tube. They have used it on 14 cases of ponies and donkeys from 8 months to 15 years old and weighing from 150 to 700 lb.

The animal is fasted for 18 hours, then backed into a padded corner and anesthetized with a rapid intravenous injection of sagatal. The animal is then placed in the required position and the endotracheal tube is adjusted and the closed circuit apparatus for total rebreathing of the cyclopropane-oxygen mixture is put into operation. One pony was anesthetized for two hours on three occasions without ill effects. There is no struggling and recovery is rapid.—*Brit. Vet. J., June, 1952.*

Twin Lambs.—Individual twin lambs average about 29 per cent lighter at birth than single lambs. By the time they are 5 weeks old, if the ewe is a good milker, they are gaining as rapidly as single lambs but are still smaller. At weaning time, twins average about 17 per cent lighter than single lambs. However, there are 2 lambs per ewe instead of 1, which means about 75 per cent more pounds of lamb. As twinning is somewhat inherited, when selecting ewe lambs for breeding a twin would be preferred over a larger single lamb.—*Montana State College Farmer, May, 1952.*

Cleft Palate Operation

A Kentucky physician who is also a horse breeder describes a repairing operation of a cleft palate in foals which he has done successfully several times. Several veterinarians have been called in consultations and to assist in the operations.

The foal is anesthetized, laid on its back, preferably in a trough, its mouth held open with bandages while the surgeon operates with long-handled instruments. The edges of the cleft palate are grasped with tenacu-

lum forceps and the margins freshened with a long-handled knife. Beginning at the base of the palate, five deep, interrupted, No. 1 chromic catgut sutures are then placed. The sutures can be tied or both ends of the suture can be run through a lead shot which is grasped in a long-handled forcep and crushed at the point where the knot should be tied. More sutures can be placed to approximate the wound edges if desired.—*Blood Horse, July 5, 1952.*

A New Breed of Cattle

The Charollais cattle, native to North Central France, are being used to cross with Herefords to develop improved cattle in Arizona. There are about one and a half million of these large cream-white cattle in France, many used as work oxen. They are noted for their size, their rich-textured meat, and their high dressing percentage. Bulls 3 years old often weigh 2,500 lb. and steers over a ton; they will dress out up to 68 per cent.

Many have been exported from France to Australia and to Argentina, and there are now several purebred herds in Mexico. However, none are known to have been imported to this country directly from France. Those used have come from Mexico and are probably not purebred. One breeder has been crossing them for ten years and he finds that the calves are larger, gain faster, and have the "mountain foraging propensities of a goat." Moreover, they are believed not to be afflicted with many of the local cattle diseases.—*West. Livestock J., July, 1952.*

Aid to Healing of Cut Spinal Cord.—A new drug, pyromen, may aid in overcoming the paralysis from a damaged or cut spinal cord by preventing the growth of scar tissue over the cut ends of the cord. Small doses tested on cats and dogs prevented the growth of this scar tissue and allowed the nerve fibers to grow down through the old channel and eventually restore function.—*Sci. News Letter, May 31, 1952.*

There is no best breed of goats. If there were, there would be only one breed.—*Dai. Goat J., Aug., 1952.*

CLINICAL DATA

Another Agent Causing Air Sac Involvement in Turkeys

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INVOLVEMENT of the air sacs or so called "air sac colds" is a problem of vital interest to the poultry industry. For years, a number of respiratory infections such as infectious bronchitis (I.B.), Newcastle disease (N.D.), and the chronic respiratory disease (C.R.D.) have been shown to produce involvements of the air sacs of chickens.

The purpose of this report is to call attention to another disease-producing agent which, in the turkey at least, could be confused with the lower respiratory form of infectious sinusitis or C.R.D.

Irons, Sullivan, and Rowen¹ in 1950 reported an outbreak of ornithosis occurring in poultry dressing plant workers in Texas in 1948. Irons, Denley, *et al.* (unpublished data) encountered another outbreak in late 1951. They suspected turkeys as a source of infection. One of the suspicious turkey flocks around which their current investigations have centered forms the basis for the findings herein discussed.

FLOCK HISTORY

The turkey flock in this study was first brought to the author's attention on Dec. 17 and 19, 1951, when the owner submitted 2 Broad Breasted Bronze (B.B.B.) market toms to the diagnostic laboratory for examination. The 2 birds submitted were from a flock of 1,000 market toms. At this time, the owner reported that he had lost 6 toms the previous week and that 10 or 12 more were sick.

Drs. Boney and Grumbles are with the Texas Agricultural Experiment Station and School of Veterinary Medicine; Dr. Delaplane is head of the Department of Veterinary Bacteriology and Hygiene, Texas A. & M. College, College Station; Dr. Irons is director of laboratories and Mrs. Sullivan is virologist with the Texas State Health Department, Austin.

¹Irons, J. V., Sullivan, T. D., and Rowen, J.: Outbreak of Psittocosis (Ornithosis) from Working with Turkeys or Chickens. *Am. J. Pub. Health*, 41, (1951): 931-937.

On autopsy, the 2 toms were found to have enlarged spleens and a fibrinous pericarditis. Bacteriological examinations were negative and no diagnosis was made.

On Jan. 7, 1952, the owner again submitted two B.B.B. hens from the same flock from which the toms previously submitted originated. Of the 2 birds submitted at this time, 1 showed pericarditis, thickened air sacs, and an enlarged grayish mottled liver. The other showed a fibrinous pericarditis and trichomonads of the crop. The bacteriological examination was negative.

Again on April 7, 1952, the owner submitted 2 additional B.B.B. hens. At this time, the owner reported that the flock had "colds" and was out of production. Of the 2 birds submitted at this time, 1 had cloudy thickened air sacs and fibrinous pericarditis. The other showed lower respiratory symptoms and on autopsy had thickened cloudy air sacs. Newcastle disease virus isolation trials in 10-day-old embryonating eggs were negative.

TABLE I—Embryo Mortality Pattern for a Virus Agent Originally Isolated from Turkeys

Passage No.	Date	Age of	Embryo mortality							
			(Days following inoc.)							
No. Inoc.	(1952)	embryos	1	2	3	4	5	6	7	
1	5	6-20	8	0	0	0	2	2	1	..
2	8	6-26	7	0	0	3	3	2
3	6	7-3	8	0	0	0	1	3	2	..
4	6	7-10	7	0	0	1	5
5	6	7-17	7	0	0	6

In addition to the embryos inoculated for each passage, a comparable number of control embryos were incubated. Mortality among the control embryos was of no significance.

Additional birds were obtained April 10 by farm visit and upon autopsy showed fibrinous pericarditis, cloudy air sacs, and 1 had a brownish fluid in the peritoneal cavity. The livers were covered with a thin

fibrinous exudate. Various tissues were collected from these birds for further study.

LABORATORY FINDINGS

A bacteria-free agent was isolated from mice injected intracerebrally and from embryonating eggs injected in the yolk sac with the turkey tissues. Following this, the same tissues were used to inoculate 4 young B.B.B. turkeys via the sinuses on June 2, 1952. The turkeys remained normal except for 1 which was sick June 17, 1952.

The sick bird was autopsied on June 17, at which time it had a fibrinous pericarditis and thickened cloudy air sacs which contained some purulent material. The other turkeys remained normal in appearance. One killed July 3, 1952, failed to show any abnormalities. The remaining 2 turkeys were destroyed on July 17. One had a markedly enlarged spleen while the other showed no lesions. The results in the 4 turkeys are of interest in that none developed involvements typical of the C.R.D. or turkey sinusitis.

From the sick turkey autopsied June 17, material was collected and used to inoculate 5 mice intracerebrally. The mice appeared sick after twenty-four hours and on the third day 1 moribund mouse was killed and autopsied. Bacteria-free brain tissue was obtained from the mouse and used to inoculate 5, 8-day-old chick embryos by the allantoic cavity route. A bacteria-free agent was isolated (table 1) and grown in five serial egg passages. The 4 remaining mice were moribund on the fourth day and were killed and autopsied. Their spleens were ground in a mortar with saline and used to inoculate a second group of 5 mice by intracerebral injection. These mice likewise became sick within twenty-four hours and were nearly dead on the third day, at which time they were killed and stored in the deep freeze.

Two, 6-week-old White Holland turkey poults were inoculated with harvested allantoic fluid from the first egg passage virus on June 26, 1952, the material being injected via the sinuses and abdominal air sacs. Both poults, and 2 controls, remained normal up to July 4, at which time 1 was found dead and the other almost dead. It was killed. The examination of these birds showed marked fibrinous pericarditis, extensive thickening of the abdominal air sacs which contained caseous material, and a marked purulent peritonitis. Blood collected from both turkeys failed to yield sufficient serum for laboratory test, due to the marked fever and dehydration. These results are of interest because at this time none of the known respiratory infections of poultry except N.D. are known to produce a recognizable infection in mice, from which virus may be isolated, grown in chicken embryos and used to reproduce the typical disease in turkeys.

The behavior of the agent indicates it is not identical to the agent producing C.R.D. on the basis of infectivity for mice, failure to produce a typical sinusitis in turkeys, and the finding of

cellular inclusions similar to those of ornithosis. Further studies are in progress to determine the identity of the agent.

SUMMARY

An infective nonbacterial agent differing from C.R.D. and capable of causing involvement of the air sacs has been isolated from turkeys. Since it is a disease entity which could easily fall under the classification of the lower form of turkey sinusitis, it is well to point out that virus isolation studies are essential in making a differential diagnosis. In all probability, careful virus studies will indicate the disease to be nationwide in distribution. A word of caution in undertaking such investigations is self-evident.

Studies are now in progress to determine if the agent is an ornithosis or an ornithosis-like agent.

Ladino Clover or Alfalfa for Pigs.—The Kentucky Agricultural Experiment Station in 1950 and again in 1951 compared the value of Ladino clover and alfalfa pastures for growing pigs. No attempt was made to measure the quantity of the pasture consumed. Each lot contained 0.4 of an acre and provided abundant pasture for 7 pigs until they reached 200 lb. In 1950, the pigs on alfalfa pasture required from 5 to 10 lb. less feed per 100 lb. of gain than did those on Ladino clover pasture. However, in 1951, in two of three comparisons, the reverse was true.—*J. Anim. Sci., May, 1952.*

Aureomycin in the Ration for Lambs.—The South Dakota Experiment Station reports that when aureomycin was fed with soybean meal, alfalfa hay, and shelled yellow corn at the rate of from 7 to 14 mg. per lamb daily for one hundred days, it did not stimulate the feed consumption or increase the rate of gain. The heavier dosage actually reduced the rate of gain and the feed efficiency. It did not completely protect the lambs against enterotoxemia but it did seem to reduce it materially.—*J. Anim. Sci., Aug., 1952.*

You can't prevent ketosis in newly freshened cows by crowding the carbohydrates into them during the dry period.—*J. Sampson, D.V.M., University of Illinois.*

Increased Bleeding Tendency in Dogs and Cats

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THE SIGNIFICANCE of increased bleeding tendency in dogs and cats is not always fully appreciated. Veterinarians usually regard such symptoms as by-products of certain infectious diseases and overlook the importance of bleeding *per se*. The appearance of increased bleeding tendency demands prompt attention to avoid an unfavorable outcome.

Reports of this condition in the dog and cat are encountered sporadically in veterinary medical literature. This paper attempts to classify the bleeding tendencies with the help of available clinical information and experimental literature.

It is generally accepted that most bleeding tendencies may be classified according to the deficiency of certain essential blood elements.

- 1) Those due to diminution or inactivity of prothrombin, thromboplastin, or fibrinogen.
- 2) Those due to capillary defect, fragility of the red blood cells, or both.
- 3) Those due to deficiency of blood platelets.

Bleeding Tendency Due to Diminution of Prothrombin, Thromboplastin, Fibrinogen.—(A) Lowered prothrombin has been shown to reduce the coagulability of blood in dogs. It is generally accepted that the liver manufactures most of the blood prothrombin and that vitamin K is essential for prothrombin formation.¹ Prothrombin reduction may occur in massive hemorrhage, protracted disease, and in extensive trauma. Severe hepatic disease is known to reduce prothrombin formation and this fact provides the basis for one of the liver function tests.² Prothrombin time may be prolonged in hepatic disease and this writer and others have observed prolonged clotting time and widespread hemorrhages in dogs affected with Rubarth's disease.³

Prothrombin formation may also be reduced when vitamin K synthesis or absorption is inadequate.⁴ It has been repeatedly demonstrated that vitamin K is essential for prothrombin formation in the dog, yet bleeding diseases do not result from feeding a vitamin K deficient diet.⁵ It is presumed that synthesis of this vitamin takes place in the dog bowel as it does in the chick. In enteritis or obstruction where the intestinal flora

is disturbed, the synthesis and absorption of vitamin K may be inadequate. Bacteriostatic agents may cause a similar disturbance in normal intestinal activity and promote increased bleeding tendency.⁶ Absorption of vitamin K is faulty in the absence of bile and it follows that any interference with bile flow may reduce prothrombin formation and cause increased bleeding tendency.⁷

It is clear that increased bleeding tendency caused by lowered prothrombin occurs in dogs. Inadequate formation of prothrombin through hepatic dysfunction, improper synthesis or absorption of vitamin K in intestinal disease, and interference with bile flow may lower prothrombin sufficiently to encourage bleeding. It is a matter of almost daily occurrence to find patients where one or more of these factors are in operation. However, bleeding tendency is not common, because the critical level of blood prothrombin is not approached except in advanced disease states.

Several cases of increased bleeding tendency accompanied by hypoprothrombinemia have been observed by this writer. One of these is reported below and is believed to be the first of its kind to be found in clinical veterinary literature.

B) Lowered thromboplastin is believed to be the cause of increased bleeding tendency in hemophilia. Two reports of hemophilia in dogs were found in the literature.^{8,9} Bleeding in this disease is not spontaneous and occurs following trauma and surgery. Thromboplastin is known to be effective in very high dilution, and lung tissue, brain tissue, and blood platelets are rich sources of this agent.

C) Lowered fibrinogen is the cause of a rare bleeding disease in man. Hypofibrinogenemia has not been reported in dogs and this condition is not discussed here.

Bleeding Tendency Caused by Increased Capillary Permeability, Fragility of the Red Blood Cells, or Both.—Increased bleeding tendency appears in the dog and cat during the course of certain systemic diseases and is referred to as secondary purpura. It is generally accepted that such bleeding tendency is caused by a circulating toxic agent which increases vascular permeability. There are a few reports of bleeding tendency in dogs associated with systemic infections.^{10,11}

The writer has observed increased bleeding tendency in dogs with septicemia, jaundice, venous stasis, and acute infectious diseases. One of these cases is reported in this paper.

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Bleeding Tendency Caused by Deficiency of the Blood Platelets.—The formation of the blood clot depends, in part, upon mechanical factors, one of which is the cellular component. The platelets play an important role in the development of the clot and when they are reduced, the tendency to bleed is increased. The platelets are also the source of a clot-acceleration factor which is independent of the mechanical action mentioned above. Thrombocytopenia occurs in man during certain blood diseases, in chronic infections, and drug intoxications. Drugs which may be implicated in thrombocytopenic purpura in man are quinine, ergot, arspenamine, gold, and salicylates.

Two cases of increased bleeding tendency with thrombocytopenia have been observed by the writer. One of these is reported herein. No earlier report of this condition could be found in clinical veterinary literature.

Symptoms.—The early signs of increased bleeding tendency are usually found in the visible mucous membranes. Petechia or ecchymoses may be encountered in the oral or conjunctival membranes. Hemorrhages in the other mucous membranes, skin, serosa, joints, muscles, and body cavities are less common. The writer has observed hematuria, hemoptysis, and hyphemia in occasional cases of increased bleeding tendency.

Diagnosis.—The signs of increased bleeding tendency are readily recognized in the clinic but the etiology may be obscure. Careful observation and laboratory tests do not always give clear and certain diagnosis of the bleeding diseases, and mixed and atypical cases may be expected. It is exceptional to find animals with classical symptoms and laboratory findings. The following procedures are a key, rather than a solution, to diagnosis. Together with clinical experience, they should permit a rational approach to therapy.

Complete details of these and other procedures that are of value in studying increased bleeding tendency in dogs may be adapted from any standard laboratory manual. The values given below are the result of blood studies by the writer. Further work will, no doubt, qualify these values and may suggest other more accurate laboratory techniques.

Bleeding Time.—Bleeding time¹¹ is the time necessary for a small skin cut to stop bleeding. It depends on several variable factors: elasticity of the skin, efficiency of tissue fluids, and the mechanical and chemical activity of the platelets. The dorsal surface of the nose may be used to make a small puncture with a lancet. The bleeding point is blotted with filter paper every thirty seconds and the size of the blot indicates the rate of decrease of bleeding. Normal bleeding time in the dog is two to four minutes. A great prolonga-

tion of bleeding time is found in hypoprothrombinemia and thrombocytopenia.

Clotting Time.—For evaluating the blood clotting time, the method of Lee and White¹² is adaptable to the dog. Blood is collected by venipuncture into a clean tube. The tube is tipped at intervals and observations are made. The end point is reached when the blood no longer flows upon tipping the tube. Clotting time of normal dog blood is four to eight minutes. Clotting time is greatly prolonged in hemophilia, obstructive jaundice, and leukemia.

Prothrombin Time.—The method of Quick¹³ for prothrombin determination has been used in the accompanying reports. Normal prothrombin time in the dog is twelve to sixteen seconds. A sample of blood from one or more apparently normal dogs should accompany the suspected blood to the laboratory. Prothrombin time is prolonged in hepatic disease, vitamin K deficiency, obstructive jaundice, intestinal obstruction, and intestinal infection.

Platelet Count.—The direct method¹⁴ which employs the hemocytometer is one of the most practical for veterinary use. Rees and Ecker's diluting fluid was used in the accompanying reports. The normal platelet count in the dog is 250,000 to 350,000 per cubic millimeter. Reduction to 50 per cent or less of this value is generally accepted as evidence of thrombocytopenia. In cases of dehydration, a correction should be made for hemocentration which may obscure a real thrombocytopenia.

TREATMENT OF INCREASED BLEEDING TENDENCY

General Therapeutic Considerations.

Patients with increased bleeding tendency should have a bland, nutritious, easily digested diet. In the presence of anorexia or vomiting, nutrition and hydration should be maintained with parenteral fluids. The caloric, nitrogenous, and electrolyte needs of the patient should be calculated on a weight and activity basis, and suitable parenteral feeding should be initiated.

Fresh blood is beneficial in certain bleeding diseases and has been used with good results. Blood stored more than two or three days is not suitable in bleeding diseases since the survival time of the transfused red blood cells is very short. The antibiotics are valuable in fever, leukocytosis, or in the presence of a left shift in the neutrophil series.

Special Therapeutic Considerations.—**Increased Bleeding Tendency Caused by Lowered Prothrombin.**—In hypoprothrombinemia with liver damage, choline and the amino acids, especially methionine, are valuable adjuncts to a carefully designed

diet.¹⁶ Markowitz recommends a meat-free ration in partially dehepatized dogs.¹⁷ He found that such subjects developed ascites when meat was fed, while a diet of corn syrup and milk was preventive. Vitamins B₁, B₂, and B₁₂, folic acid, and liver extract are useful and should be given in therapeutic quantities. Vitamin K is specifically indicated and should be given parenterally. One to 2 mg. of vitamin K daily is adequate during the course of the disease. It is well to remember that vitamin K is inactive in the absence of bile, and oral bile salts may be corrective.

Bleeding Tendency Caused by Lowered Thromboplastin.—Surface bleeding may be controlled by styptics and powdered thrombin. Bleeding in inaccessible places may be controlled by brain tissue vaccines, rabies vaccine, and tissue extracts which contain appreciable quantities of thromboplastic substance.

Bleeding Tendency Caused by Defect in the Red Blood Cells, Capillaries, or Both.—The treatment of the so-called secondary purpuras is directed toward the cause.

Bleeding Tendency Caused by Platelet Deficiency.—There does not seem to be any single therapeutic agent that is preferred above all others for this condition. However, considerable experimental work has been done to determine the value of vitamins, chemical agents, surgical and other procedures in treating bleeding tendency resulting from thrombocytopenia.

Aside from general constitutional and hygienic measures, the vitamins have been recommended in full therapeutic doses. Vitamins C, K, and P have been used suc-

cessfully in man. Liver extract, moccasin snake venom, x-ray, and splenectomy have been advanced by workers in human medicine. A discussion of each follows.

The symptoms of vitamin C deficiency in man are well recognized. It is doubtful that vitamin C is necessary in the dog's ration and there is evidence that this agent is synthesized by the dog.¹⁸ It does not necessarily follow that the vitamin is valueless in treating purpura in the dog. The organ responsible for its synthesis is unknown and any disease which interferes with synthesis of vitamin C may result in a deficiency state which may be corrected by administering this vitamin.

Vitamin P, known as the permeability vitamin, has been recommended for thrombocytopenic purpura. The natural distribution of this factor parallels that of vitamin C. In controlled animal experiments, it was shown that permeability of the capillary wall is reduced by vitamin P.

X-ray irradiation of the spleen has been used in man.

Splenectomy produces a marked but temporary elevation in the thrombocyte count of the dog.¹⁹

Vitamin K has been used with good results in man and has been used by the writer in dogs suffering from thrombocytopenia associated with increased bleeding tendency.

Briefly, in treating thrombocytopenic purpura in dogs, vitamins C, K, and P seem to be specifically indicated and should be given parenterally in full therapeutic doses.

During the period 1947-1951, increased bleeding tendency was observed in 7 dogs and 2 cats. One of each principal group of bleeding diseases is reported below.

CASE REPORTS

Case 1.—In April, 1950, a 3-year-old male Beagle Hound was brought to the hospital for examination. He was depressed and anorexic. The temperature was 104 F. and the breathing was labored. The pharynx was very red and covered with tiny follicles. With a tentative diagnosis of pharyngitis, the dog was given 300,000 units of aqueous procaine penicillin. When he was returned in twenty-four hours, the pharynx was found to be greatly improved. The penicillin therapy was continued. The dog was seen forty-eight hours later when he was hospitalized. The temperature was normal

TABLE 1.—Bleeding, Clotting, and Prothrombin Time and Platelet Counts in Some Diseases Causing Increased Bleeding Tendencies in Cats and Dogs

Test	Thrombocytopenic purpura	Hemophilia	Hypoprote thrombinemia	Purpura as result of infectious disease	Traumatic hemorrhage
Bleeding time	Increased	Normal	Increased	Normal	Normal
Clotting time	Normal	Increased	Increased	Normal	Normal
Platelet count	Decreased	Normal	Normal	Normal	Normal
Prothrombin time	Normal	Normal	Increased	Normal	Normal

but the general condition was much worse at this time. He was depressed and a mild jaundice was present. There was marked bilateral hyphemia and the stools were dark and tarry. Bleeding time was prolonged; a puncture of the dorsum of the nose bled for fifteen minutes. The prothrombin time was twenty-one seconds. Two samples collected at the same time from apparently normal dogs averaged ten seconds by the same method. The blood count was normal; however, no platelets were found on stained smears or in the counting chamber. A tentative diagnosis of hepatitis was made. Treatment consisted of parenteral vitamin

Prothrombin and platelet values were normal at the time of dismissal.

Discussion.—This case was diagnosed as hepatitis. Lowered prothrombin values, prolonged bleeding time, and increased bleeding tendency may be expected in this condition and were, in fact, observed. Thrombocytopenia was marked and was probably caused by the severe infection. It is unfortunate that clotting time studies were not made in this case. Clotting time is normal in thrombocytopenic purpura but is increased in hypoprothrombinemia. Clotting time studies might have served to differentiate between the two conditions.



Fig. 1—Massive hemorrhages in the hind leg of a 5-year-old female Fox Terrier. The discoloration is due to hemorrhage and is not pigmentation or soiling.

K, 2 mg. every forty-eight hours, and continued at this rate throughout hospitalization. Since the dog was unable to take food, he was given daily intravenous feedings of 5 per cent dextrose in saline and 5 per cent amino acids in water. A whole blood transfusion was given on the third day of hospitalization. By the fourth day, small quantities of water and broth were being retained but intravenous feedings were continued until the seventh day.

The dog gradually overcame his great depression and made a good recovery. Although he had lost 4 lb. during his illness, he was eating well and was in good spirits when he was released from the hospital nine days after date of entry. Jaundice was still apparent and the ocular hemorrhages had not been completely absorbed.

Case 2.—In February, 1951, a 10-month-old male Collie was brought to the hospital for examination. He was listless and had a mucopurulent conjunctival discharge. The temperature was 104 F. and the dog was vomiting. The stools were frequent and loose. The symptoms suggested gastroenteritis and 400,000 units of aqueous procaine penicillin were given intramuscularly and kaopectate was dispensed for use at home.

The dog was returned in forty-eight hours when he was found to have generalized purpura. Petechiae were observed on all visible mucous membranes and the skin was covered with confluent ecchymoses. The temperature was 105 F. and the dog was apathetic but he took and retained

small quantities of fluids. A blood count at this time revealed the following:

Red blood cells 4,290,000/1 cm.
White blood cells 24,000/1 cm.
Thrombocytes 140,000/1 cm.
Segmenters, 54%; stabs, 19%; monocytes, 1%;
lymphocytes, 26%.
Prothrombin time and bleeding time were
normal.

The diagnosis was gastroenteritis with secondary purpura. The treatment consisted of parenteral penicillin and vitamin K. During the next three days, the cutaneous hemorrhages continued to become more confluent and less intense in color. The scrotum swelled to the size of a baseball and was deeply reddened and edematous. A mild jaundice appeared on the third day. Under treatment, the temperature returned to normal in five days and the dog was able to take normal quantities of food and water. By the sixth day, the scrotum was considerably improved and the jaundice was barely perceptible. The leukocytosis and left shift disappeared by the sixth day. Bleeding time and platelet counts were again found to be within normal ranges at this time.

Discussion.—In this case, increased bleeding tendency and hemolytic jaundice were believed to be caused by a toxic factor in the circulating blood. Increased bleeding tendency appears during the course of certain infectious diseases. In such cases, as in this, there is no deviation from the normal in the prothrombin time, bleeding time, or the thrombocyte count. When these values are normal, vitamin K administration has little merit. Vitamin K was used in this case as a precautionary measure. The underlying disease responded to penicillin therapy.

Case 3.—In January, 1951, a 5-year-old female Dachshund was brought to the hospital for examination. She and her litter mate had been acquired from a breeding kennel several months earlier. At that time, both dogs were in poor condition. They had improved somewhat but the dog examined had a harsh, dry coat and a mucopurulent conjunctival discharge. There were numerous scaly areas over the body which were not raised, and many urticarial wheals which had been present for several weeks. There were also numerous ecchymoses widely distributed throughout the

skin. Temperature, pulse, and respiration were within normal limits. The urine was normal. A blood count disclosed the following:

Red blood cells 4,700,000/1 cm.
White blood cells 9,450/1 cm.
Thrombocytes 26,000/1 cm.
Hemoglobin 80 per cent Talqvist
The differential count was normal.
Prothrombin time was seventeen seconds and
bleeding time was prolonged.

A tentative diagnosis of thrombocytic purpura was made. The dog was hospitalized. Treatment consisted of daily administration of vitamin K and penicillin. By the fifth day, the hemorrhage and urticaria had completely disappeared and the general condition was greatly improved. The dog was released from the hospital with vitamin K to be given at home at the rate of 1 mg. daily by mouth.

By the nineteenth day of observation, the thrombocyte count had increased to 143,000/1 cm. There was at the same time a considerable reduction of red blood cells and hemoglobin which constituted a borderline anemia. The general condition was fair and the appetite was poor. Liver extract was administered and lextron capsules were dispensed for use, one each morning and night.

By the twenty-sixth day, the blood count showed a further erythropenia. There was a definite shift to the left and the dog was returned to penicillin therapy. Liver extract and lextron capsules were continued and folic acid and vitamin B₁₂ were added to the regimen.

The dog made good progress and by April 8, 1951, her blood count was within normal ranges, although the left shift persisted.

Red blood count 6,760,000/1 cm.
White blood count 12,250/1 cm.
Platelets 128,000/1 cm.
Hemoglobin 80 per cent Talqvist
Segmenters, 75%; stabs, 3%; juveniles, 8%;
lymphocytes, 14%.

Discussion.—The prolonged bleeding time and thrombocytopenia correspond to the expected findings in thrombocytopenic purpura. There was no evidence of history of infection, and it was originally the writer's opinion that increased bleeding tendency was due to primary thrombocytopenia. The

possibility of drug idiosyncrasy is slight since there was no history of medication before the first day of examination.



Fig. 2—Multiple petechiae on the shaved abdomen of a 1-year-old female cat.

The prompt return of thrombocytes to normal levels accompanied the disappearance of cutaneous hemorrhages. It was interesting to note that the anemia became worse during the course of treatment and responded only after folic acid and vitamin B₁₂ were added to the regimen. The persistent left shift in neutrophils was unexplained at the time.

This patient did not make a complete recovery and was returned five months later for euthanasia. Autopsy revealed multiple tumors involving the liver, spleen, and skin. Other findings were normal. The slow response to treatment was probably due to the tumors found on autopsy.

This dog died of a condition not suspected at the outset. The case report, nevertheless, is valuable because it is the

first report of increased bleeding tendency with thrombocytopenia to be found in clinical veterinary literature.

CONCLUSION

A review of the literature and the cases reported indicates that the bleeding tendencies of dogs may be classified into three principal groups:

1) Those caused by diminution of prothrombin, thromboplastin, or fibrinogen.

A) Bleeding tendency, associated with hypoprothrombinemia, occurs in dogs. One such case is reported. There are at least two references to increased bleeding tendency with hypoprothrombinemia in experimental literature.

B) Two reports of increased bleeding tendency caused by lowered thromboplastin were found in the literature.

C) No reports of hypofibrinogenemia were found. This is a rare disease in man.

2) Bleeding tendency caused by increased capillary permeability, red blood cell fragility, or both was observed in 3 cases, 1 of which is reported. Several cases were reported in the literature.

3) Two cases of increased bleeding tendency associated with thrombocytopenia were observed; one of them is reported.

A review of the literature, coupled with experience in the clinic, suggests that dietary, medical, and other measures are of value in treating the various bleeding tendencies of dogs and cats. There is evidence to support the efficacy of vitamin K in treating the bleeding tendencies of small animals which our experience has thus far confirmed.

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Hyperthermia in a Woman

A 56-year-old woman who, seventeen years before, had been operated upon for the removal of an abdominal neoplasm, suffered a recurrence recently. After the first operation, she was treated with a series of injections of a culture solution known as Coley's toxin. Since that toxin previously benefitted her, another series of the same toxin injections was started. The toxin was given intravenously once daily and the dose gradually increased. Some injections were followed by a mild rise in temperature. About the tenth day, the injection was followed by a severe chill and her temperature climbed to 114 F., three hours after the injection. Mental confusion, apprehension, facial congestion, and cardiac arrhythmia were evident; ice packs were placed around the patient and she was given intravenous infusions of 5 per cent dextrose and other treatments which brought her temperature down to 104 F. in fifteen minutes. She recovered fully with no apparent ill effects, probably because of the brief duration of the high temperature.

This is one of the highest temperatures ever observed in man.—*J. Am. M. A.*, July 5, 1952.

Reactions to Feeding DDT

Healthy calves were put on diets containing 0 to 100 p.p.m. of DDT and 10.2 to 16.5 per cent protein. After two months of DDT feeding, the following symptoms began to appear and were the most pronounced in calves receiving the highest levels of DDT: skin thickening, wrinkling and scaling, thinning of the hair, lacrimation from the eyes, watery discharges from the nose, and tremors. As the amount of DDT in the diet increased, the amount of nitrogen stored decreased. DDT seemed to have no effect upon calcium and phosphorus balances.—*J. Dai. Sci.*, Jan., 1952.

Michigan State College reports that the addition of terramycin to the ration of growing pigs improved both the rate and the efficiency of their gains. Pigs did fully as well on a 15 per cent protein ration, which was reduced to 12 per cent when they weighed 100 lb., as they did on an 18 per cent protein ration reduced to 15 per cent at 100 lb.—*J. Anim. Sci.*, Aug., 1952.

Effect of Hormones on the Growth of Swine.—The University of Illinois reports an experiment in which the growth hormone of the anterior pituitary gland of two distinct lines of pigs of the same breed is compared. They found that there is considerably more growth hormone secreted by the anterior pituitary gland in the rapid growing line of pigs than in the slow-growing line of pigs. This greater hormone secretion satisfactorily accounts for more rapid gains of this line of pigs.—*J. Anim. Sci.*, May, 1952.

The numbers of penicillin-resistant *Streptococcus*, *Micrococcus*, *Neisseria*, and *Corynebacterium* organisms in the mouth were greater in children who had used penicillin tooth powder for three years than in those who had used the same tooth powder without penicillin. — *Antibiotics and Chemotherapy*, 2, May, 1952.

Outbreaks of *Erysipelothrix Rhusiopathiae* Infection in Fowl

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THE PURPOSE of this paper is to bring up to date a report on the cases of *Erysipelothrix rhusiopathiae* diagnosed in New Jersey.

By way of review, the first outbreak of the infection in birds in the United States came to our attention in November, 1934.¹ It was not until November, 1945, that another outbreak was seen in New Jersey. Six other cases were investigated during 1946, all of which occurred between August and November.² This report deals with 22 additional outbreaks: 20 in turkeys, one in ducks, and one in pheasants. All were found in the course of routine diagnostic service provided by the state poultry pathology laboratories at New Brunswick and Vineland. Time restriction prevented a thorough investigation of each outbreak, but the following cases are placed on record to emphasize the importance of the disease.

CASES

Case 1.—On Jan. 7, 1949, the Western Game Farm, Cambridge Springs, Pa., experienced an outbreak which was investigated by one of us and briefly reported (annual meeting, Northeastern Conference of Laboratory Workers in Pullorum Disease Control, June 23, 1949) as follows:

On January 7, 4 live pheasants were shipped to this laboratory by express and 5 to the laboratory at Harrisburg, Pa. Only 1 bird arrived at this laboratory, the other 3 having been removed in transit. This specimen was emaciated and showed no specific lesions. The brain, spleen, and trachea were saved for embryo egg inoculation by Dr. Bivins. These tissues were each ground with broth and cultured on agar plates. One small colony developed from the spleen culture but failed to grow on subculture. However, the embryos inoculated with the spleen tissue yielded the swine erysipelas organism. This organism was also found in the pheasants sent to the Harrisburg laboratory.

In the meantime, a call was made to the game farm and 6 dead specimens were shipped by ex-

press on January 10 and arrived at the laboratory on the eleventh. These consisted of 2 males and 4 females. The males showed severe muscular hemorrhages, hemorrhages in the air sac membranes and in the heart. Their lungs were congested, spleens swollen, and intestines hemorrhagic. The females showed practically the same lesions with less severe muscular hemorrhages. Cultures were taken from the liver, and the swine erysipelas organism was isolated from five. The cultures fermented dextrose and lactose but not maltose and saccharose. The characteristic test tube growth was seen in nutrient gelatin.

The flock consisted of 12,000 birds, almost equally divided between males and females. The field in which they were kept contains 45 acres and has been owned by the game farm for four years. Pigeons have been seen to fly into the field. There are no sheep on any of the neighboring farms but there are some swine. However, no cases of erysipelas have been diagnosed in this vicinity by the local veterinarians. Across the road from this flock were some 6,000 pheasants which were never affected.

Prior to the outbreak there was some abnormal loss, but this was attributed to handling and re-brailling of the birds. The first losses attributed to the disease took place on Dec. 17, 1948, when 19 birds died. Table 1 indicates the daily losses encountered during the outbreak.

These losses continued upward to the peak day of January 6, when 1,150 died. From this time, losses declined and the last to die were on Jan. 15, 1949. During the course of the outbreak 7,681 birds died. Of these, 4,264 were males and 3,417 females. The foreman of the farm believed that cannibalism, plus the fact that part of the range was rather wild making it difficult to recover dead birds before the others had a chance to eat them, was the principal cause of the spread of the infection.

Case 2.—On Sept. 9, 1949, 1 dead Bronze turkey from a flock of 150 turkeys near Basking Ridge in Somerset County was presented for examination. The owner indicated that losses had been about one a day during the previous week. He also reported that mortality was restricted to tom turkeys. The farm dog was the only animal on the place; however, the presence of rats was noted. It was learned that water for watering the turkeys had been obtained two weeks prior to the outbreak from a homemade reservoir about 300 ft. from the pens. Spring water, however, was

¹ Paper of the Journal Series, New Jersey Agricultural Experiment Station, Rutgers University — the State University of New Jersey, New Brunswick.

² From the Department of Poultry Husbandry, New Jersey Agricultural Experiment Station, New Brunswick.

used at the time of the outbreak. Samples were obtained for testing from the spring currently used for watering and from the water pans. These samples were inoculated subcutaneously into 2 mice with negative results.

Only 4 droopy birds were noted in the flock when a visit was made to the farm on September 11. These were each injected with 100,000 units of penicillin intramuscularly and were isolated from the remainder of the flock which was confined on sunporches. A second visit on September 14 revealed that only 1 of the 4 inoculated birds had died; the others appeared normal.

The postmortem findings of the bird presented for examination included petechial hemorrhages of the pericardium, enlargement and congestion of the liver and spleen, and some evidence of enteritis, but no muscular hemorrhages. A positive culture was obtained from the specimen.

Case 3.—Two turkeys were delivered for postmortem examination on Nov. 9, 1949, from a farm near Caldwell in Essex County. The owner reported that 17 birds, 5 to 6 months of age, from a flock of 100 were affected. Fifteen of these died, including 12 toms, during one month. According to the owner, the birds were confined and fed commercial turkey mash and grain. Pigeons, rats, and mice had been seen about the premises.

Routine cultures taken in the course of the autopsy of the 2 birds revealed the presence of *Ery. rhusiopathiae*. Both specimens showed necrosis of the liver and hemorrhages on the heart.

Case 4.—On Sept. 12, 1950, a second outbreak was reported involving the same farm listed in case 3. One dead turkey was received for examination, and swine erysipelas organisms were recovered from this bird. It was 1 of 4 males which had been lost. The bird presented heart and muscle hemorrhages, congestion of the lungs, swelling and necrosis of the liver, and a swollen, black spleen. No further history was obtainable.

Case 5.—This outbreak accounted for the loss of 4 turkeys out of a flock of 90. One male turkey was examined on Oct. 4, 1950, from a farm near Doylestown in Bucks County, Pa. Postmortem findings indicated the presence of muscle hemorrhages, lung congestion, necrosis of the liver, and a dark spleen. *Erysipelothrix rhusiopathiae*

organisms were recovered from the specimen.

Case 6.—On Oct. 6, 1950, 1 dead tom turkey was presented from a farm near Rumson in Monmouth County, N. J. The owner stated that in two days 7 toms were lost out of 35 affected birds. These were part of a flock of 700, 6-month-old turkeys all of which were confined on porches. Autopsy findings included hemorrhages of the muscles, lung congestion, catarrhal enteritis, and necrosis of the liver and spleen, together with swelling and a black appearance of the spleen. A positive culture was obtained.

Case 7.—Another turkey farm sent in a dead tom for diagnosis on Oct. 11, 1950. This farm was in Lebanon in Hunterdon County, N. J. No history accompanied the specimen, but a questionnaire mailed to the owner in January, 1952, revealed the following information.

About 2,200, 6-month-old birds were on the farm at the time of the outbreak, and the entire flock was confined and fed a commercial ration. Not many birds were affected, but since the flock was ready for slaughter at the time of the outbreak, all of the turkeys were killed and dressed, thus limiting the infection. Mortality figures were not available, but it was interesting to note that sheep, pigeons, rats, and mice were reported on the farm prior to, or during, the outbreak. Examination of the carcass of the 1 dead tom showed muscle and lung hemorrhages, together with swelling, congestion, and necrosis of the liver. Swine erysipelas organisms were recovered from the specimen.

Case 8.—A feed representative delivered 2 tom turkeys on Oct. 19, 1950, from the town of Moonachie in Bergen County, N. J. Again, no history was provided, and attempts to obtain further information were unsuccessful. One bird had an internal hemorrhage from the right kidney, but no erysipelas organisms were isolated from this specimen. The second dead bird was found to have muscular hemorrhages in addition to the usual dark spleen and swollen, necrotic liver; and, from this specimen, the causative organisms were obtained.

Case 9.—From the town of Rosemont in Hunterdon County, 2 dead Broad Breasted Bronze toms were delivered on Nov. 22, 1950, for diagnosis.

From the history, it was learned that the

22-week-old specimens were 2 of 10 birds, all males, which were removed from one pen. The mortality, it was learned, was confined to this pen of 65 birds and lasted just one week. The flock of 900 was maintained on wire, and the pens were separated by a 5-ft. space. The pens were occasionally frequented by pigeons, rats, and mice, but no other animals were reported on or near the farms. Both birds exhibited hemorrhages of the muscles; typical swollen, black spleens; necrotic, swollen livers; and catarrhal enteritis. *Erysipelothrix rhusiopathiae* was isolated following routine culture.

Case 10.—It wasn't until Aug. 29, 1951, that another outbreak was diagnosed. This case involved 1 dead female and 8 dead tom turkeys from Morristown in Morris County, N. J. The history indicated that the outbreak started in late July in the same shelter that was infected on Oct. 17, 1946, as reported previously.²

About 125 to 150 birds were kept in each shelter. In previous years, the owner had ringed young turkeys to avoid picking losses, but had decided to debeak the present

crop. This operation was delayed, however, so that when losses started in the buff turkeys in shelter 1 in July, the owner attributed these to picking. These losses stopped, however, and in two or three weeks losses were noted in the White Hollands in pens 2 and 3. About 25 to 30 birds, chiefly males, were lost from each of these pens. Forty were lost from pen 5 in one 24-hour period. On Sept. 20, 1951, the remainder of the birds in pens 6 and 7 were killed and dressed. Very few birds were lost after this period. The birds from pens 1, 2, and 3 were then permitted to range over the several areas of the farm.

The outbreak affected birds of about 10 to 24 weeks of age. The mortality was 250 to 300 birds out of a flock of 1,500. The lowest mortality was noted in the older birds; however, the course of the disease was shorter in the young birds. Pigeons and rats were seen feeding about the turkey shelters.

Again, muscle hemorrhages, necrosis of the liver and spleen, and catarrhal enteritis were found. Positive swine erysipelas cultures were obtained from each of the carcasses.

Case 11.—Two 6-month-old turkeys were delivered to the laboratory by a feed representative on Sept. 14, 1951. The birds, 1 of which was alive, were part of a flock of 400 kept in confinement. The owner reported that the disease lasted four weeks and during this time 300 birds were affected. Two hundred of these were lost, including 100 toms.

Hogs had been kept on the turkey range during summers for five years and at no time did any of them appear sick. The presence of other animals, with the exception of numerous cats, was not reported. In this case, the value of penicillin in treating the infection was again demonstrated when two injections of unknown amounts of the drug at two-week intervals cured birds not too seriously affected.

Autopsy of the live bird revealed a dark, necrotic spleen. The dead bird showed hemorrhages in the muscles, necrosis of the liver, and a dark, swollen spleen. A severe catarrhal enteritis was also noted. Both birds were found to have positive cultures.

Case 12.—On Sept. 20, 1951, a 6-month-old Broad Breasted Bronze male from Eatontown in Monmouth County, N. J., was

TABLE 1.—Daily Losses of Pheasants in Winter Holding Field Dec. 17, 1948 to Jan. 15, 1949

Date	Male	Female	Total	Temp. degrees	Weather
Dec. 17	7	12	19	24	Cloudy, snow flurries
Dec. 18	23	12	35	15	Cloudy, snow flurries
Dec. 19	26	21	47	20	Cloudy, snow flurries
Dec. 20	49	38	87	20	Cloudy, snow flurries
Dec. 21	38	26	64	28	Cloudy, snow flurries
Dec. 22	43	50	93	28	Cloudy, snow flurries
Dec. 23	47	35	82	16	Cloudy, snow flurries
Dec. 24	31	23	54	15	Cloudy, snow flurries
Dec. 25	47	36	83	8	Cloudy and windy
Dec. 26	82	70	152	8	Clear, 2 in. of snow
Dec. 27	96	78	174	8	Cloudy, high 25°
Dec. 28	114	89	203	20	Cloudy, high 38°
Dec. 29	137	91	228	54	Rainy, high 40°
Dec. 30	116	85	201	20	Cloudy, windy
Dec. 31	171	149	320	16	Cloudy
Jan. 1	79	39	118	20	Snow blizzard
Jan. 2	197	210	407	20	Clear and blustery
Jan. 3	674	286	960	18	Cloudy
Jan. 4	238	101	339	14	Cloudy, high 34°
Jan. 5	440	350	790	34	Rainy all day
Jan. 6	688	462	1,150	22	Cloudy, snow flurries
Jan. 7	359	463	822	28	Fair, windy, high 42°
Jan. 8	305	290	595	50	Fair, high 45°
Jan. 9	96	143	239	35	Fair, high 48°
Jan. 10	70	95	165	28	Foggy, high 45°
Jan. 11	36	91	127	20	Cloudy, high 25°
Jan. 12	27	92	79	18	Cloudy, snow flurries
Jan. 13	17	33	50	24	Fair, high 38°
Jan. 14	4	16	20	26	Rainy and freezing
Jan. 15	11	11	22	24	Rainy and freezing
Totals	4,264	3,417	7,681		

presented. The dead bird was 1 of the 150 affected out of a flock of 1,400. Twelve toms had been lost in the previous five days. Two were from a group of 4½-month-old birds raised on wire. Four pens were kept on the ground, but only one of these pens was affected in the three-month period during which the disease lasted. Five hogs had been reared on the place and all but 1 of these had recently been sold. Sparrows and pigeons were occasionally seen flying over the premises but these were the only other birds observed.

The autopsy showed petechial hemorrhages of the breast, leg, and heart muscles. The liver was swollen and congested and the spleen was acutely swollen and black. The heart showed verrucous endocarditis. *Erysipelothrix rhusiopathiae* organisms were recovered from the specimen.

Case 13.—Two 20-week-old White Holland turkeys, 1 alive and 1 dead, were presented on Sept. 25, 1951, from Parsippany, Morris County, N. J. Ten birds had died during the previous three days from a pen of 170 toms raised on wire.

The dead tom was found to have a swollen, engorged, black spleen, mottled hemorrhagic areas of the liver, hemorrhages on the serosa of the sternum, and small petechial hemorrhages of the epicardium and pericardial sac. Congestion was noted in the vessels of the thigh muscles and in one testicle. Edema, swelling, and cyanosis were present in the snood. The duodenal mucosa was studded with nodules and the intestine presented a catarrhal enteritis. A positive culture was isolated from this bird.

The live bird was injected subcutaneously in the neck with 2,000,000 units of penicillin. This bird later recovered.

Case 14.—One tom turkey was received from a farm near New Brunswick in Middlesex County, N. J., on Oct. 10, 1951. The owner had lost 8, 5-month-old toms from a flock of 90 birds raised on wire. Eleven birds were affected during the course of the infection which lasted approximately one week. No animals were kept on the farm and only pigeons, rats, and mice were seen about the premises.

An examination of the bird received for autopsy revealed muscular and splenic hemorrhages, necrosis of the liver, and congestion of the lungs.

Case 15.—Two 5-month-old Broad Breast-

ed Bronze turkeys were brought to the laboratory from Plainfield, Union County, N. J., on Nov. 5, 1951. Twenty-three birds had been lost from a flock of 104 in a period of five days. Only 2 of these birds were females. About 70 per cent of the birds were affected and these were distributed among the flock reared in confinement. No other animals were kept on the place, but pigs and pigeons were kept on an adjoining farm about 500 feet away. Rats and mice were occasionally seen about the pens. The sick birds were injected with 300,000 units of penicillin intramuscularly. These birds responded almost immediately, and within forty-eight hours were reported back on full feed. No deaths occurred after treatment.

One of the birds presented for examination revealed hemorrhages of the heart and a dark, swollen, mottled, congested liver. From this bird, swine erysipelas organisms were recovered. The second bird was not cultured, since blackhead lesions were evident on the liver.

Case 16.—A vocational agriculture instructor delivered a dead, 5-month-old turkey to the laboratory for examination on Nov. 17, 1951. The flock of 50 turkeys from which the bird was taken was reared by a student on a farm near Bordentown in Burlington County, N. J. All birds were confined, and only 7 were lost during the two-week period before they were sold. Five of these dead birds were reported to have been males.

The autopsy findings included acute congestion of the liver and kidney, but the spleen was nearly normal. A culture of the liver and spleen revealed only coliform organisms, but a culture of the bone marrow proved positive for *Ery. rhusiopathiae*.

Case 17.—The final case of the year was investigated at New Brunswick on Nov. 23, 1951, when a farm near Wyckoff in Bergen County sent 2 White Holland turkeys from a flock of 500. The swine erysipelas organism was isolated from the spleens of these birds which had been taken from a group of about 200 affected turkeys reared in confinement. Twenty-five were lost during the first three weeks of the outbreak, and an additional 50 were lost during the final week. Nearly 50 of these were males about 20 weeks of age. The history indicated that the flock was on a combination mash and grain ration. In

addition to the turkeys, only a few chickens were kept. No other animals were kept on the premises but evidence of rats and mice could be found.

Upon autopsy, the dead tom turkey presented a dark, congested spleen and breast muscles, and the liver was also dark and mottled. The second bird showed hemorrhages of the muscles and heart and a dark spleen.

Case 18.—Six 7-week-old ducks were received by the Vineland Poultry Laboratory

from Urbana, Va., on July 10, 1946. No history accompanied the specimens, but a pure culture of *Ery. rhusiopathiae* was isolated from the birds.

Case 19.—In October of the same year, turkey poultz were examined twice from the same farm near Pedricktown in Salem County, Va. On the fifth of the month, 4 poultz were presented for examination and 6 additional birds were received on the tenth. All of the specimens were taken from a flock of 200, 4-month-old birds which

TABLE 2.—Summary of Outbreaks of Erysipelothrix Rhusiopathiae Diagnosed in Fowl by the New Jersey Department of Agriculture (July 10, 1946 to Nov. 23, 1951)

Town and county	Date	Birds on farm	Age in wks.	Number affected	Duration of infection	Number lost	Number males	Confined ranged	Swine	Sheep	Pigeons	Rats	Mice
NEW BRUNSWICK CASES													
Cambridge Springs, Bucks Co., Pa.*	1/11/49	Pheasants 12,000	**		30 days	7,681	4,264	Range		x			
Basking Ridge, Somerset County	9/9/49	Turkeys †150	20		10-18 days	9	Only	Confined				x	
Caldwell, Essex County	11/9/49	100	20-24	17	30 days	15	12	Confined		x	x	x	
Doylstown, Bucks Co., Pa.*	10/4/50	90					4						
Basking Ridge, Somerset County	9/12/50						4						
Rumson, Monmouth County	10/6/50	700	24	35		7	7	Confined					
Lebanon, Hunterdon County	10/11/50	2,200	24	Few				Confined		x	x	x	x
Moonachie, Bergen County	10/19/50						2						
Rosemont, Hunterdon County	11/22/50	900	22	60		10	10	Confined		x	x	x	
Morristown, Morris County	8/29/51	1,500	10-12 22-24	900	65 days	250-300	Most	Confined		x	x	x	
Song Valley, Morris County	9/14/51	400	16-20	300	30 days	200	100	Confined	x			x	x
Easton town, Monmouth County	9/20/51	1,400	18& 26	150	90 days	12	Only	Range & Confined	x	x		x	
Parsippany, Morris County	9/25/51	170	20			10	Only	Confined					
New Brunswick, Middlesex County	10 22/51	90	20	11	1 wk.	8	8	Confined		x	x	x	
Plainfield, Union County	11/5/51	104	20	70%	5 days	23	21	Confined	x		x	x	x
Bordentown, Burlington County	11/17/51	50	20		14 days	7	5	Confined					
Wyckoff, Bergen County	11/23/51	500	20	200		75	50	Confined				x	x
VINELAND CASES													
Urbana, Virginia*	7/10/46	Ducks	7			6							
Pedricktown, Salem County	10/5/46 10/10/46	200	16			150		Confined	x				
Sewell, Gloucester County	9/14/50	500	14			2		Range					
Newfield, Gloucester County	9/27/50 9/29/50	150	16			19							
Sewell, Gloucester County	9/27/51	100	24		4 days	8							

*Denotes out-of-state cases. **Blank spaces indicate lack of information. †Unless otherwise indicated, the number represents turkeys.

were raised on wire. The history indicated that the flock was off wire for a day about two weeks prior to the outbreak. During the course of the infection, 150 birds died and 30 of these were lost in one week.

It was further reported that 25 old hens and 100 pullets (chickens) were on the farm. About 15 per cent of these died and the remainder were sold. Of 25 geese, 10 died; and of 15 ducks, 12 were lost.

Forty hogs and 36 pigs were raised in adjacent buildings, and 2 of these died. The farm also had 9 cows from which 1 calf had died. The last of the livestock included 2 horses, 1 of which had been sick but recovered. No postmortem examinations were made on any animals or birds other than the turkey poults, and these revealed swine erysipelas organisms.

Case 20.—On Aug. 14, 1950, a turkey was received from a flock of 500, 14-week-old birds at Sewell in Gloucester County. Only 2 of these, range birds, were lost. The flock otherwise appeared normal and no decrease in the birds' appetite was noted by the owner.

The autopsy findings included a mucoid enteritis, together with hemorrhagic areas on the breast, and *Ery. rhusiopathiae* organisms were isolated following routine culture.

Some days after the autopsy of this specimen, one of us (J.J.B.) developed a typical erysipeloid lesion of one finger.

Case 21.—Two lots of White Holland turkeys were received from a 150-bird flock near Newfield in Gloucester County—4 on September 27 and 2 dead birds on the twenty-ninth. Swine erysipelas organisms were isolated from each of the 4-month-old birds. The total mortality reported during the course of the infection was 19.

Case 22.—Another turkey, together with a liver, was examined on Sept. 27, 1951, from a farm near Sewell, also in Gloucester County. Eight 6-month-old turkeys were lost from a flock of 100 birds in this four-day outbreak. No further history was available. Positive cultures were obtained from the specimens.

DISCUSSION AND CONCLUSIONS

The incidence of swine erysipelas in fowl appears to be increasing in New Jersey. In 1934, 1 case was diagnosed, followed by another in 1945. Seven outbreaks were

recorded during 1946, two in 1949, seven in 1950, and nine in 1951. The previous report² included most of the cases investigated up to and including 1946 and involved only three counties, but the cases in this report include 11 of the 21 counties of New Jersey. This indicates a much wider distribution of the infection among birds than was previously reported.

From table 2, it is clear that the majority of the outbreaks in turkeys occur during the months of September, October, and November, and that 4- to 6-month-old birds are chiefly affected. It is also evident that the disease may be expected to last at least a month. It may extend over a period of three months, however, if the birds are not treated or if the course of the disease is not interrupted by slaughter.

Toms, predominantly, are affected and the greater percentage of losses occurs in male birds. This is emphasized by the fact that in 6 of the cases reported only males died.

Since the swine erysipelas organism is known to occur on the bodies of fish, and since the organism has been recovered from fish meal,³ an attempt was made to learn which rations contained this ingredient but, in the majority of cases, the owner did not know the composition of the ration. Pigeons, rats, and mice were mentioned most often as being present on the turkey farms, but an evaluation of their significance is difficult. It is known, however, that rats may carry the swine erysipelas organism.^{4,5} In the absence of a known definite source of infection, all possible vectors must be regarded with suspicion.

Penicillin was used by several turkey growers in treating and controlling the infection. In each of these instances, one or two intramuscular injections of 100,000 to 300,000 units per bird appeared to be effective in treating those which were not seriously affected.

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Women Veterinarians

Dr. Margaret Sloss (ISC '38) reports that women have graduated from all of the veterinary schools in the United States except Texas A. & M. College, which is not a co-educational school. The total number of women veterinarians is now 160, with the first two having been graduated in 1910 and the ten latest in 1952. Cornell with 32 graduates and Michigan with 29 have graduated the most women veterinarians. Of 84 who recently answered a questionnaire, 56 were married, 29 of them to veterinarians. Thirteen of them were in general practice, 43 in small animal practice, seven in poultry practice, nine in research, four in diagnostic laboratories, and four in educational work.—*Southwest. Vet., Summer, 1952*.

People are drinking more milk, partly because of general prosperity but chiefly because the dairy industry is doing a better job of selling the public on its good flavor and its nutritive values.—*West. Dai. J., Aug., 1952*.

The number of physicians in the United States is now over 211,000, an all time high. New licenses to practice were issued to 6,282 doctors during 1951, a net gain of 2,640 for the year.

Rinderpest in the Rome Zoo.—Wild ruminants imported from Somaliland were reported to be responsible for a severe outbreak of rinderpest in the Rome zoo. To eradicate the disease, it was necessary to slaughter all susceptible animals.—*Vet. Bull., June, 1952*.

Dr. K. F. Wells, Ottawa, Ont., discussing disinfection on the highways in the foot-and-mouth disease outer quarantine zone: "Those stations were about as useful as a hip pocket on a dog but the public demanded them."

Rabbits Processed Like Poultry

Modern production line methods have expanded rabbit processing until it now ranks third in Los Angeles County, led only by beef and chicken processing. These rabbits are first inspected alive, then stunned, killed, decapitated, hung on a rail, skinned, eviscerated and inspected. The carcass is then chilled, cut into eight sections, packaged and frozen. Four rabbit does, weighing about 10 to 12 lb. each, are said to produce more meat in a year than will a cow weighing 1,000 lb. A cow will raise one 400-lb. calf but 4 does producing four litters of 7 or 8 rabbits each can raise 480 lb. of fryer rabbit in a year. About 5 million rabbits are produced annually in southern California. This is about 85 per cent of the country's output.—*Food Engineering, July, 1952: 7*.

Localized Tuberculosis in Man.—The Mayo clinic reports that in the last five years more than half of the chronic localized infections in subcutaneous areas, in bones, joints, or tendons have been due to the *Mycobacterium tuberculosis* of the human type. The next most common cause has been either fungi or Brucella organisms (usually *Brucella suis*). These chronic localized infections may develop abscesses, draining sinuses, or osteomyelitis.—*Proc. Mayo Clinic, June 4, 1952*.

Antihistamines and Burns.—Eight healthy men volunteered to have two circular burns $\frac{1}{2}$ in. in diameter placed upon their upper arms. An iron heated to 60 C. was applied for fifteen seconds. Four of the volunteers then were given antihistamine tablets daily for nine days while the other four were given dummy tablets. The lesions were then carefully studied but no healing benefit from the antihistamines could be observed.—*Brit. M. J., July 12, 1952*.

Erysipelas Arthritis in Horses.—Horses being hyperimmunized in the production of swine erysipelas-immune antiserum frequently develop endocarditis or arthritis. It is reported that these local infections can be diminished by using subcutaneous inoculation of a sediment obtained by agglutinating broth cultures of the organism with hyperimmune serum.—*Vet. Bull., June, 1952*.

A Liver Biopsy Technique for Cattle

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IN THE COURSE of studies on vitamin A and carotene metabolism by beef cattle, the need of a technique that would permit routine collection, from the living animal, of liver samples of sufficient size to conduct chemical determination of vitamin A and carotene was apparent. It also appeared that such a technique would be of value in other experiments on metabolism and infectious diseases. This report is on a technique that has been used successfully to routinely collect 1.5- to 2.5-Gm. liver samples in beef cows.

ANATOMICAL CONSIDERATIONS

The liver in the adult cow is found almost entirely to the right of the median plane. Its long axis is directed downward and forward; its parietal surface is convex and is mostly applied to the right costal portion of the diaphragm, but part of it is in contact with the last two or three ribs and inconstantly with the flank at the angle formed by the last rib and the transverse processes of the lumbar vertebrae. The area between the last two ribs on the right side is the logical operative site for doing biopsies of the liver in the bovine species. The general anatomical relations are shown in figure 1. It must be kept in mind that the incision should be made at a point lower than the diaphragmatic line of pleural reflection so that the pleural cavity will not be invaded in the operative procedure. This point in the twelfth intercostal space is about one-third the distance from the dorsal midline to the costal arch. The diaphragmatic line of pleural reflection is the line created by the costal pleura being reflected from the ribs and intercostal spaces onto the diaphragm. According to Sisson and Grossman¹ this line extends from the costochondral junction of the eighth rib in a slight curve upward and backward to the twelfth rib about 6 in. from its vertebral extremity. Occasionally it does extend back to the last rib.

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Liver biopsies in the calf should be performed by the standard laparotomy approach, due to the fact that the liver has not always rotated into its adult position. Also, the small intercostal space does not give enough room to perform the operation. In the newborn calf, the liver is not usually in contact with the right abdominal wall. It is located in the antero-ventral part of the abdominal cavity and has right and left lateral lobes. As the calf grows older, its rumen and reticulum increase in size and weight and tend to rotate the liver to the right to its adult position. The left lateral lobe then becomes the ventral lobe, and the right lateral becomes the dorsal lobe.

OPERATION

Restraint.—The standing position with the animal stanchioned in a chute, as shown in figure 2, is the type of restraint pre-



Fig. 1.—Anatomical Relations: (1) twelfth rib; (2) thirteenth rib; (3) diaphragmatic line of pleural reflection; (4) costal attachment of the diaphragm; (5) caudate lobe of the liver; (6) dorsal lobe of the liver; (7) greater omentum; (8) duodenum; (9) twelfth intercostal and the ventral branch of the thirteenth thoracic spinal nerve.

ferred. A somewhat similar type of restraint that may be used consists of securely fastening the head of the animal with the left side against a board fence. Additional restraint was not found necessary. Actually, the animals seemed to fight the additional restraint more than the actual operation.



Fig. 2—The location for liver biopsy in the cow. The trocar has been removed and exploratory examination of the biopsy area is made. A relatively small amount of restraint is required if the skin, subcutaneous tissues, muscles, and peritoneum are anesthetized.

Anesthesia.—The blood and nerve supply of the area is furnished by the intercostal vessels and nerves. They lie in the intercostal spaces immediately posterior to the ribs. Anesthesia of the area can be obtained by injecting 10 cc. of a local anesthetic solution just posterior to the posterior border of the ribs, as indicated in figure 1. Care must be exercised so that the anesthetic solution is not placed too deeply in the tissues, as one might very easily inject the solution directly into the pleural cavity. Anesthesia may also be obtained by local infiltration of the operative area.

Instruments.—The special instruments devised for this technique, in addition to the usual surgical equipment, are shown in figure 3. A large rumen trocar was shortened and a blunt diamond point made on it. The end of the cannula was beveled so as to fit smoothly over the hub of the trocar. The

biopsy instrument,* as shown in figure 3, had a bore $\frac{1}{2}$ in. in diameter and was 1.2 in. in depth. It was of thin-walled construction with a cutting edge. In collecting

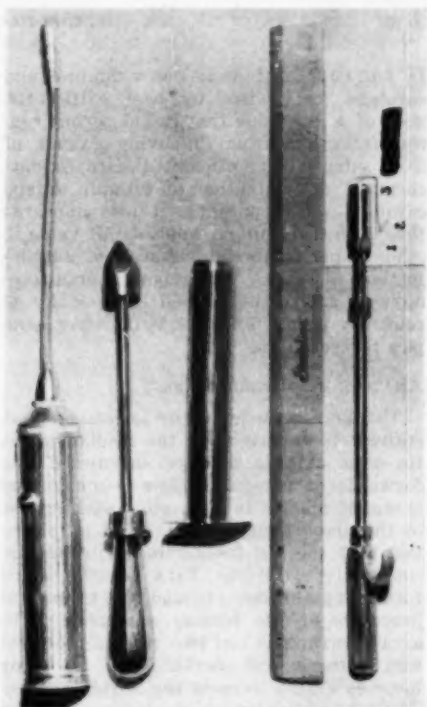


Fig. 3—The special instruments devised for collecting liver samples. The trocar and cannula are made from the large rumen trocar and cannula. The biopsy instrument is shown with a 2.2-Gm. sample of liver. The piano wire (2) is shown with the "looped" end ready for adjusting on the inside of the bore of the biopsy instrument. The free ends of the wire emerge from the bore through the small hole (3) and attach to the screw (1) which is in turn attached to the "trigger mechanism."

this amount of liver tissue, it was found necessary to also separate it at the distal end of the core. This was accomplished in the following manner: A small piece of piano wire was doubled, the bent end made into a "loop" so as to fit tightly against the inside wall of the bore on the biopsy

*Grateful acknowledgment is made to Gordon G. Smith and Preston G. Wilson, Department of Engineering Research, Oklahoma A. & M. College, for cooperation in designing this instrument.

instrument about $\frac{1}{8}$ in. from the cutting edge. The free ends of the piano wire were brought to the outside of the bore through a small hole about $\frac{1}{8}$ in. from the cutting edge and were attached to a screw on a sliding washer—which in turn was attached to a "trigger mechanism." Thus, when the trigger was pulled, the piano wire loop would cut across the core of liver tissue and separate it from the liver. The piano wire was resilient and small enough so that when fixed in position just behind the cutting edge it would not be dislodged or interfere while boring into the liver. The flashlight with the flexible extension bulb was used to explore the peritoneal cavity as to the site of biopsy.

Technique.—The operative area over the twelfth and thirteenth ribs and 8 to 10 in. from the dorsal midline is clipped, cleansed, and disinfected in the usual procedure for surgical operations. The skin, subcutaneous tissues, and peritoneum are anesthetized as previously described.

A $1\frac{1}{2}$ -in. incision through the skin is made between the twelfth and thirteenth ribs at a point about 10 in. from the dorsal midline. The trocar and cannula are introduced antero-medially (with a rotary movement) through the incision, fascia, musculature, and peritoneum. After penetration of the peritoneal cavity, the trocar is removed, the flashlight with the extension bulb is introduced, and the site on the liver to be biopsied is determined. This exploratory examination aids in eliminating interference from and injury to the adjacent tissues. When the area to be biopsied is located, the flashlight is removed and the cannula held gently against the liver at this location. The biopsy instrument (with the piano wire in place) is now introduced through the cannula and the liver sample is collected by gently boring into the liver about 1 in. The "trigger" is pulled to separate the attached end of the liver core and to retain it in the biopsy instrument while the latter is removed. The cannula is removed, the skin incision sutured, and an antiseptic applied to the wound. No further treatment of the area is required.

RESULTS AND DISCUSSION

This technique was used in collecting approximately 200 liver samples in connection with experiments on carotene and vitamin A metabolism in cattle.^{2,3} No postoperative

ill effects were noted in any instance. In one experiment, liver biopsies were collected from 4 cows at monthly intervals for one year. These cows were examined at slaughter, and only a small amount of scar tissue and adhesions at the site of the previous biopsies were noted.

Garner⁴ and Loosmore and Allcroft⁵ have also reported a liver biopsy technique for cattle. The main advantage of the technique reported in this paper is that it permits the collection of a somewhat larger liver sample. The exploratory examination is also advantageous in that the danger of injuring other tissues is reduced, the area from which the samples are to be collected can be somewhat standardized, and it avoids the collection of a sample from the same area previously biopsied. In some instances, there was considerable hemorrhage from the biopsied wound in the liver. This did not seem to cause any ill effects; however, it was not desired and might be reduced by the introduction of some of the newer anticoagulants into this area just before removal of the cannula. Some improvements are also desired in the biopsy instrument in that the fixing and attaching of the wire is somewhat time-consuming. However, the wire was usually attached and fixed in place while waiting for the tissues to be anesthetized. Twenty to thirty minutes are usually required to do the complete operation. A very similar technique was used in day-old calves, except that the approach was through the abdominal wall just posterior to the last rib.

SUMMARY

A liver biopsy technique that has been used extensively in cattle is described. It permits the collection of 1.5 to 2.5-Gm. samples of liver tissue. It also allows exploratory examination of the liver surface and adjacent region in the peritoneal cavity.

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Cholelithiasis and Choledocholithiasis in a Cat

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STONES IN THE gall bladder and in the biliary passages are rarely reported in animals. Hutyra, Marek, and Manninger¹ mention that "gallstones are found most frequently in the horse and ox, more rarely in the dog, and exceptionally in the cat, pig and sheep."

Schlotthauer and Stalker,² Volkmar,³ Doster-Virtue and Virtue,⁴ Schlotthauer,⁵ and Millar and Hubbard⁶ have reported cases in the dog; however, as far as can be determined, no case has been reported in the cat.

A 6-year-old male, grey and white domestic cat was presented at the Angell Memorial Animal Hospital clinic on Feb. 3, 1952. He had been ill for about ten days, eating but vomiting solid food shortly afterward. He drank large quantities of water which was retained. A week previously, the cat had vomited a large mass of worms, which would seem from the owner's description to have been ascarids.

Clinical examination showed a markedly dehydrated animal with intensely yellow-orange mucous membranes and sclerae, and a very yellow skin. The temperature was 101.0 F.; respiration, normal; the heart beat regular and perhaps slightly slow. The cat's attitude was good considering the severity of his symptoms.

The animal was hospitalized and given immediate intravenous therapy of 70 cc. isotonic saline and dextrose solution with 10 cc. parenamine. Every twelve hours during hospitalization, 100 cc. of isotonic saline and dextrose solution was given subcutaneously.

Laboratory determinations performed sixteen hours after admission were as follows:

Red cell count	7,300,000 per cmm.
Hemoglobin	11 Gm./100 cc. of blood.
Hematocrit	33 per cent.
Icterus index	100 units +.
Sedimentation rate	28 mm. in thirty minutes and 58 mm. in sixty minutes (Wintrobe).
Total and differential white cell counts	were virtually normal.
Fecal examination	negative for parasite ova.

A diagnosis of obstructive jaundice was made. In the light of the history, obstruction of the biliary ducts by ascarids seemed to be a possibility and $\frac{1}{4}$ oz. of magnesium sulfate in 2 oz. of milk was given by stomach tube. An enema was given two hours later. The feces were hard in consistency and dark grey in color. A roentgenogram was taken and was negative.

Further therapy, besides parenteral fluids, included oral administration of bile salts, vitamin K, and multivitamin preparations. Milk was given daily by stomach tube.

Celiotomy with possible cholecystotomy was considered but was not performed as the animal daily became weaker and died on Feb. 13, 1952.

At necropsy, all tissues were found to be stained intensely yellow. The liver was swollen and dark brown. Closely adhering to its surface was a network of red-tinged fibrin. About 10 cc. of clotted blood was found in the omentum near the liver. The gall bladder was greatly distended, being about three times normal size. The biliary ducts were even more strikingly distended (5 to 8 times) and more than cursory examination was required to distinguish the gall bladder. When the gall bladder was opened, the wall was seen to be greyish white in color and 1 to 2 mm. in thickness. The contents were approximately 15 cc. of a yellowish brown, viscous, mucoid fluid and two black stones measuring 4 and 6 mm. in diameter. When the common duct was opened, it was found to be completely occluded at the sphincter of Oddi by another black stone 10 mm. in diameter. Two stones, each 4 mm. in diameter, were found in the hepatic duct. The hepatic ducts, interlobular ducts, and smaller ducts throughout the liver were greatly dilated and their walls thickened. All other organs were grossly normal.

Histological study of the liver revealed dilation and hyperplasia of the bile duct epithelium and periductal infiltration with round cells. The liver parenchyma showed pigmentation, edema, and an increase in sinusoidal cells. The stones were almost

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wholly composed of calcium salts of bilirubin and with a probably positive reaction for phosphates. Tests for oxalate and carbonate were negative.

It is difficult to know what should have been done with this patient. Possibly an exploratory operation in the earlier stages might have enabled us to remove the stones successfully. However, considering the rare occurrences of these stones, such a procedure would have been hard to justify.

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Clinical Aspects of Mastocytoma in Dogs*

The material for this study was obtained from 50 dogs operated on (Bloom) for mastocytoma at the Angell Memorial Animal Hospital in the past four years. Histological differentiation of the mastocytoma from other round-cell sarcomas is accomplished with Giemsa-stained sections. Clinically, the mastocytoma appears as a poorly demarcated skin tumor with a definite predilection for the thighs (17 cases) and external genitalia (12 cases). The incidence in Boston Terriers, Boxers, English Setters, and Scottish Terriers seems greater than the proportion which these breeds constitute in the general canine population.

Treatment of small mastocytomas is liberal excision of the tumor and surrounding skin. When the history of microscopy indicates rapid growth or there is already evidence of metastasis, a poor prognosis must be given. — *Svend Woge Nielsen, D.V.M., Angell Memorial Animal Hospital, Boston, Mass.*

*The complete paper by Dr. Nielsen will be published in the 1952 "Proceedings Book."

Fescue Foot in Cattle in Colorado

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Fescue lameness was first reported by the Wallaceville (New Zealand) Veterinary Research Station in 1948¹ as being due to a toxic substance, resembling ergot, in a certain species of tall fescue grass (fig. 1).

The toxic substance contained in the grass apparently causes a restriction of the blood supply to the hind feet, resulting in lameness and a sloughing of the hoof of one or both feet (fig. 2, 3, 4). Occasionally, the tail and tips of the ears are sloughed by affected animals.



Fig. 1—Reed fescue in mature stage.

Lameness of this nature has been reported at various intervals by western Colorado cattlemen for the past thirty years. It was considered to be due to ergot poisoning, foot rot, or frozen feet, and not until 1948, following the New Zealand report, was the disease in Colorado first associated with tall fescue grass. At that time, 65 of 240 feeder cattle, shipped into western Colorado where they had access to tall fescue grass, developed lameness and

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¹Cunningham: Austral. Vet. J., Feb., 1949.



Fig. 2—Cattle affected with fescue foot.

sloughed the hoof of one or both hind feet.

The malady again became prevalent in a number of western Colorado herds, during

has the botanical name *Festuca arundinacea*, the same species reported to be the cause of trouble in New Zealand.

Reed fescue grass in western Colorado, as in New Zealand, is most commonly found on wet, poorly drained land or along ditch banks. It is a tall, coarse, rather unpalatable species of fescue which cattle as a rule do not consume when more palatable feed is available.

It is not believed that other species of fescue grasses, such as those recommended for range or pasture grass mixtures, carry this toxic substance.

The prevalence of fescue foot in the winter of 1951-1952 is probably due to a heavier than usual snowfall, along with a



Fig. 3—Fescue foot showing sloughing of first, second, and third phalanx of both hind feet. Only a small percentage of the cases develop to this extent, most afflicted animals slough the hoof of one or both hind feet, the left hind foot being most frequently affected.

the fall and winter of 1951, where cattle had access to a considerable quantity of reed fescue. This species of grass, also termed king, giant, or ditch bank fescue,

general shortage of hay. When the ground was covered with snow, the reed fescue stood erect and was the only roughage available on a number of pastures where cattle were being wintered.

Plans are being made by the Colorado A. & M. School of Veterinary Medicine to test reed fescue at various stages of growth to determine when it is most toxic and the quantity required to cause toxic conditions.



Fig. 4—The hind feet of a cow affected with fescue foot.

Teschen Disease in Swine.—Since there is a similarity between Teschen disease and poliomyelitis, an attempt was made to classify the Teschen virus. Only the pig was susceptible. Monkeys and rodents inoculated with Teschen virus remained susceptible to poliomyelitis virus. Teschen virus seems to be a distinct agent with a unique host range.—*Vet. Bull., May, 1952.*

Terramycin in Fistulous Withers

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In the past, treatment of fistulous withers (supraspinous bursitis) at the University clinic has consisted primarily of surgical intervention. This process of incision, curettage, irrigation, packing, and drainage has been protracted and less than satisfactory. Brucellosis vaccine therapy has been avoided mainly because of the severe abscessation which must occur. Previously, antibiotics and sulfonamides had no effect.

In an effort to arrive at a means of treatment which is rapid, safe, and effective, terramycin¹ was administered intravenously in two classical cases of fistulous withers, both showing a positive *Brucella* agglutination in 1:400 dilution.

Case 1 was a Shetland pony weighing approximately 400 lb. Swelling at the withers was pronounced in spite of a prolonged course of surgical treatment. Since the presence of *Brucella* was indicated, terramycin was administered intravenously, with an initial dose of 500 mg. and a daily sustaining dose of 250 mg. for seven days. Terramycin ointment¹ was inserted under pressure into the unhealed incisions.

By the second day, the previously copious discharge from the incisions had ceased. By the fifth day, the swelling and tenderness had subsided. The patient no longer exhibited lameness. By the tenth day, the incisions were completely healed. A *Brucella* agglutination test was positive only to the 1:50 dilution. The pony was returned to work. There has been no relapse in the intervening seven months.

Case 2 was a large saddle horse weighing approximately 1,400 lb. The swelling at the withers was extremely large and bilateral. Lameness was pronounced. As in case 1, there was a positive *Brucella* agglutination of 1:400. Surgical intervention had been unsuccessful, and the case was declared hopeless. At this point, terramycin was administered intravenously, with an initial dose of 1 Gm., and a sustaining dose of 500 mg. daily for nine days. No

ointment was used in the unhealed incisions.

All discharge ceased by the second day, and the huge swelling had subsided in a most dramatic way by the third day. By this time, the animal showed sound in the walk and the trot. A week after the course of treatment, the animal was worked under the saddle and showed no sign of having had the condition. An agglutination test for *Brucella* was positive only to the 1:100 dilution. There has been no relapse in the ensuing four weeks.

In neither case were there side effects or untoward symptoms. The course of recovery in both was uneventful and uniform.

SUMMARY

1) Terramycin, intravenously, was used in conjunction with drainage incisions in 2 cases of fistulous withers showing positive *Brucella* agglutination, both of which were regarded as hopeless after unsuccessful surgical intervention.

2) Apparently complete recoveries were achieved in both cases with no side effects.

3) An intravenous dosage of approximately 2 mg. per pound for seven days on 1 patient, and approximately 3 mg. per pound for ten days on the other patient, was apparently sufficient. The initial dose used was double the daily sustaining dose.

The Protective Properties of Colostrum

British authorities report an experiment in which calves were given colostrum the first twelve hours of life, then were placed on a dried skim milk diet for three weeks. A few control calves deprived of colostrum died. In another experiment, certain cows were premilked for fourteen days before calving. Their postparturient milk was fed to one group of calves. A second group was fed colostrum, and a third group was fed milk from cows which had been in production for some time. After the first twenty-four hours, all calves were fed for three weeks on a dried skim milk diet. All the calves receiving normal colostrum survived whereas several in the other two groups died. The calves given colostrum also showed a significantly greater gain than did the calves in the other two groups.—*Vet. Bull., June, 1952.*

¹Dr. Landon is assistant professor of clinics and medicine, and research assistant, University of Georgia, School of Veterinary Medicine, Athens.

²Terramycin was provided by courtesy of Pfizer and Co., Inc., Brooklyn, N. Y.

The Extent of Parasitic Damage to Livers of Swine from Four Southern States

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PEOPLE ASSOCIATED with the production and processing of pork are aware that internal parasites are responsible, directly and indirectly, for a great annual loss to the meat industry. Neighbert and Counelly¹ estimated the annual loss in one southern packing plant in 1928 to be \$80,000. Spindler² estimated the annual loss in the United States in establishments where swine are slaughtered under federal inspection to be in excess of \$75,000,000 in 1948.

This loss may be seen from several points of view. The farmer has runty, unthrifty pigs which require more time and feed to reach market weight than do less severely parasitized, more vigorous ones. The packer realizes that parts of carcasses, and frequently the higher priced parts, are condemned by meat inspectors at the time of slaughter as being unfit for food because of parasitic damage. The housewife knows that the available supply of pork and pork products are, to her at least, relatively high priced.

This study was initiated to obtain information about the condition of the livers of swine slaughtered in southeastern Virginia.

PROCEDURE

Three local abattoirs, at which meat inspectors from the U. S. Bureau of Animal Industry are regularly stationed, cooperated in this study. Unannounced, one-day visits were made twice each month to each of the three establishments for a period of one year ending June 30, 1951. On each visit day, a tabulation was made of the disposition, by the federal inspectors, of the liver from each hog slaughtered on that day.

For the purposes of this study, the livers were

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The author expresses his sincere appreciation to the personnel of the Gwaltney Packing Co., Smithfield, Va.; Joel E. Harrell and Son, Inc., Suffolk, Va.; the Smithfield Packing Co., Smithfield, Va.; and to the members of the Meat Inspection Division, Bureau of Animal Industry, U.S.D.A., who were stationed at these plants, for their wholehearted cooperation during this study.

Grateful acknowledgement is also made of the work of Dr. Boyd Harshbarger, director, Statistical Laboratory, Virginia Polytechnic Institute, Blacksburg, Va., for statistical analysis of the data.

divided into three classes, *i.e.*, passed, trimmed, or condemned. The animals were divided according to their area of origin. Animals designated from region 1 were raised in southeastern Virginia and northeastern North Carolina within about 125 miles of the abattoirs. Animals included in region 2 originated in Georgia and Florida.

The majority of the animals were brought to the abattoirs by truck but in some instances those from region 2 were shipped by rail.

RESULTS

The division of animals according to area of origin, and the livers according to disposition, made some interesting comparisons possible. Unless otherwise noted, the statements and comparisons in this report are based entirely on data obtained on the visit days to the abattoirs.

During the twelve-month period covered by this study, a total of 33,655 hogs were slaughtered at the three abattoirs on the days they were visited. Of these, 28,208 (83.8%) originated from region 1 and 5,447 (16.2%) from region 2. The greatest number of swine (3,616) was slaughtered during January and the lowest number (1,980) during August. Animals from both regions were slaughtered from August through March but only those from region 1 were slaughtered during the remaining four months.

The monthly distribution of the disposition of all livers from all three establishments is shown in graph 1. Each bar represents 100 per cent and is divided into passed (clear), trimmed (diagonal), and condemned (solid) sections. Between November, the month of highest condemna-

TABLE 1—Estimated Annual Loss from Liver Condemnations

Establishment	No. hogs slaughtered	Liver condemnations			
		Per cent	Number	Weight	Value
A	107,520	69.3	74,460	223,380	\$ 67,014
B	39,132	59.1	23,120	69,360	20,808
C	131,200	68.1	89,350	268,050	80,415
Total	277,852	67.3	186,930	560,790	\$168,237

Total value of condemned livers, \$168,237; total number of hogs slaughtered, 277,852; average loss per hog slaughtered, 60.5 cents.

tions (84.0%), and May, the month of lowest condemnations (38.9%), there was a rather consistent decrease in the monthly condemnations.

When the liver distribution by months is similarly plotted but with the animals divided according to area of origin, there is no consistent marked advantage to animals from either region.

It is obvious from graph 1 that the combined percentage of passed and trimmed livers is not constant and that separately they do not even approximately equal each other. This becomes more apparent when graph 2 is examined. The percentage of passed and trimmed livers of animals from region 1 which were slaughtered in all three establishments is shown here in a linear manner. Starting in November, there was a definite and consistent increase in the percentage of passed livers. This continued through May but in June the percentage decreased. However, the percentage of trimmed livers remained relatively constant throughout the year except in July.

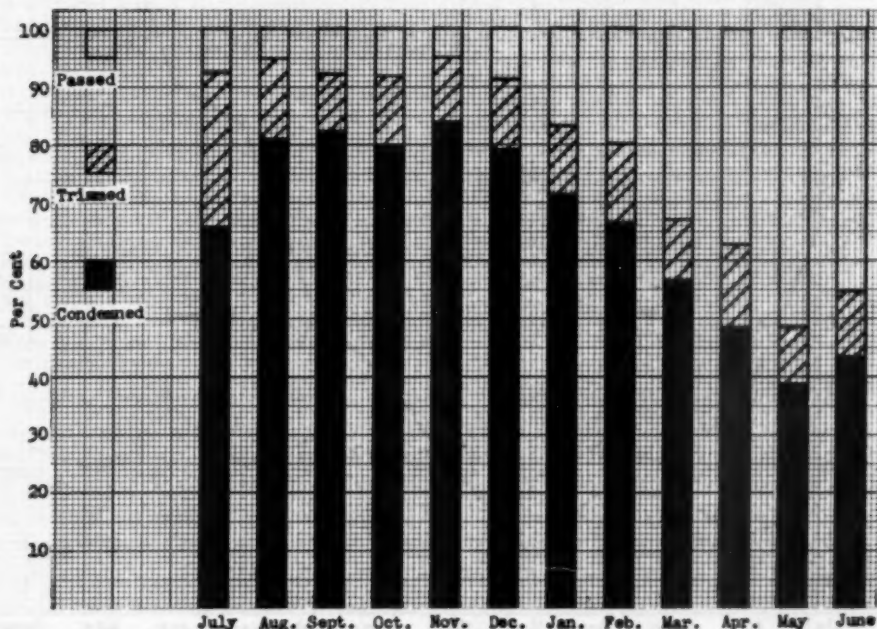
STATISTICAL ANALYSIS

An analysis of variance was made on the "passed" livers after an appropriate transformation. This showed highly significant differences both between months and between establishments. From this, it is evident that similar significant differences exist within the "trimmed" and "condemned" data.

ANNUAL LOSS

The annual monetary loss due to liver condemnations at the three establishments visited was considerable. Any stated figure would, of necessity, be an estimate. Livers were estimated to average 3 lb. each and to be valued at 30 cents per pound. In the loss computation, it was considered that two establishments slaughtered hogs on twenty days per month and the third on eight days per month. This is a close approximation when Saturdays, Sundays, and holidays are excluded. Visits were made on two days per month to each plant. In the case of two plants, data were collected on

Graph 1—Monthly distribution of all livers from all three establishments—July, 1950, through June, 1951.



10 per cent of their kill days, and at the third on 25 per cent. Thus, actual figures obtained at the two plants were multiplied by 10, and from the third by 4, in obtaining an estimated annual number of animals slaughtered. In these computations of loss, no attempt was made to give any credit for the value of tannage produced from the condemned livers. The results are shown in table 1.

DISCUSSION

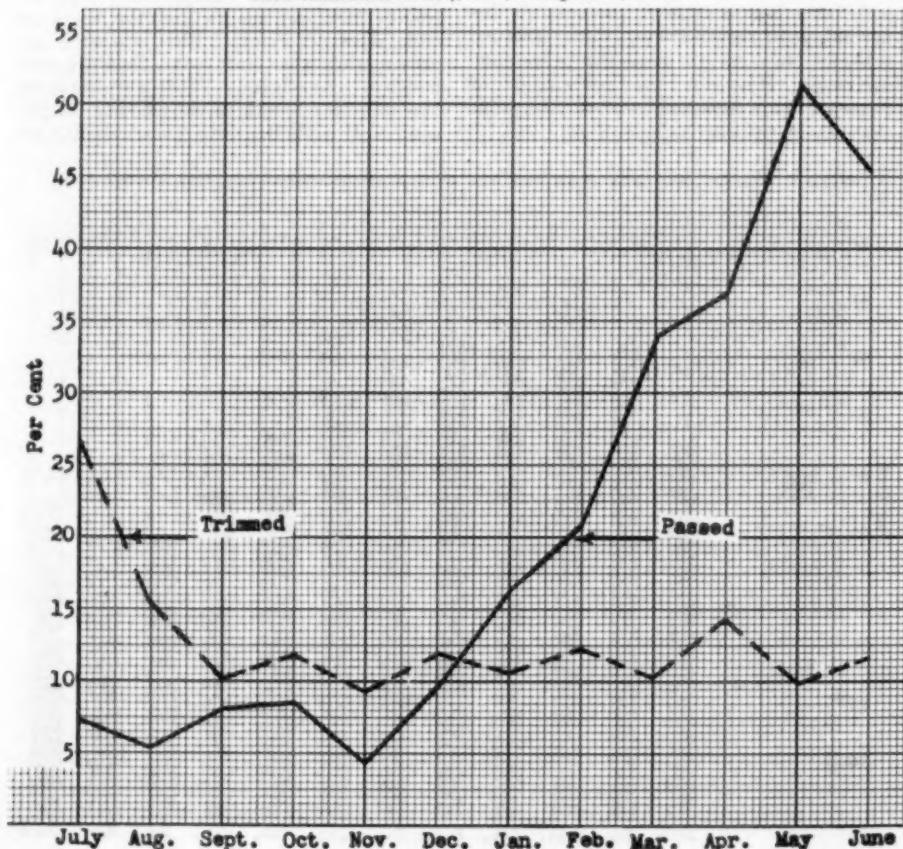
It is generally agreed that parasitic damage, due to ascarids and kidney worms, accounts for the vast majority of swine liver condemnations, and that other miscellane-

ous conditions are responsible in a small minority.

Usually, in this area, spring-farrowed pigs are sold as fat hogs in the fall and winter. The greatest liver condemnations occur during this latter period. It would seem logical, therefore, that efforts directed toward an attempted reduction in parasitic damage and liver condemnations would yield the highest return if they were applied especially to spring pigs. This does not mean that fall pigs should be neglected because they, too, will benefit from better conditions and care.

A swine management system which would include (1) thrifty breeding stock, (2) pro-

Graph 2—Monthly distribution of passed and trimmed livers from local animals slaughtered at all three establishments—July, 1951, through June, 1952.



tection of newborn pigs from the elements, (3) avoiding old hoglots to reduce parasitic infection, (4) proper treatment to remove intestinal parasites, (5) clean pastures especially during the growing season, and (6) a feeding program designed to promote continuous rapid growth would help to reduce losses from parasitic damage and aid in the production of better market hogs.

SUMMARY

The disposition of the livers from 33,655 hogs which were slaughtered at three federally inspected abattoirs in southeastern Virginia was noted over a twelve-month period.

Of the animals, 83.8 per cent were raised in southeastern Virginia and northeastern North Carolina; and 16.2 per cent in Georgia and Florida.

Inspection of the livers resulted in 7,172 (21.3%) being passed, 4,322 (12.9%) trimmed, and 22,161 (65.8%) condemned.

The greatest monthly percentage of condemnations (84.0%) occurred in November and the least (38.9%) in May.

The estimated total annual loss resulting from liver condemnations at these three plants was \$168,237. An estimated 277,852 hogs were slaughtered during this period. Therefore, the estimated average loss per hog was 60.5 cents.

The use of better breeding, protection, treatment, pastures, and feeding practices would be of considerable value in reducing this loss.

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¹Neighbert, E. M., and Counelly, J. W.: Losses Through Condemnations Due to Parasites and Parasitic Conditions of Swine, and the Effect of Swine Sanitation on the Control of Kidney Worms. *North Am. Vet.*, 9, (1928):34-37.

²Spindler, Lloyd A.: Effects of Parasites on Swine Production. *Proc. U. S. Livestock Sanitary A.*, (1950):241-246.

Farm work accidents in this country reached a staggering total in 1951. Fatal accidents involved 4,000 persons. Those permanently disabled totalled 250; loss of arm or leg, 11,400; loss of finger or toe, 30,900; and temporary disability, 378,000.—*University of Nevada*.

If serious clinical hypoglycemia is allowed to continue much more than an hour, it may cause irreversible brain damage.—*J. Sampson, D.V.M., University of Illinois*.

Equine Infectious Anemia in Switzerland.—The occurrence of equine infectious anemia in Switzerland, confirmed by autopsy and histological examination, is charted. Sex and age seem to have no influence but more cases occurred in summer than in winter. The sublingual hemorrhages which are considered significant in making a diagnosis were observed in 90 per cent of the positive cases but also in 26 per cent of the negative cases.—*Vet. Bull., June, 1952*.

Rabies had been reported to have disappeared from France, probably due to strict enforcement of health regulations. However, the virus may just have become attenuated.—*Vet. Bull., May, 1952*.

The United States has more rabies than probably any other country in the world.—*H. W. Schoening, D.V.M., U.S. BAI, at the Atlantic City Annual Meeting*.

Rabies in Foxes.—Virus obtained from natural fox rabies in Posen, Poland, was injected into the muscles of the hind limb of 20 captive foxes. After an incubation period usually of nine to eighteen days but occasionally as long as seven weeks, the animals developed serious rabies. They lost their caution toward human beings and would stand with their backs arched and the distal half of their tails drooping. A few kicked out with their hind legs. All had pruritus, especially at the site of injection and many died at the end of a single day, others in two or three days. Normal foxes were put in the same enclosures with the rabid ones but seldom contracted the disease.—*Vet. Bull., May, 1952*.

Thirty-nine persons acutely ill with brucellosis were treated—16 with terramycin hydrochloride, 12 with chloramphenicol, and 11 with aureomycin. Clinical response was equally good with each antibiotic but 69 per cent later suffered relapses.—*Vet. Bull., April, 1952*.

Intravenous terramycin was tried in over 50 cases of diphtheria, and the author believes it to be the drug of choice at the present time.—*Southwest. Vet., 3, Spring, 1952*.

Apparent Recovery of a Dog from Rabies

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Rabies is generally considered to be fatal once symptoms of the disease develop. However, it appears to be unusual that any disease, regardless of its seriousness, would be characterized by no recoveries. In most of the infectious diseases of both animals and man, the mortality depends upon a number of circumstances such as susceptibility of the host, dosage of the infecting agent, and portal of entry. Experimental data show that a massive dose of rabies virus injected in the masseter muscles is necessary to insure clinical symptoms and death in 65 per cent or more of the dogs used in challenge tests. It is possible that the introduction of a minute dosage of virus, under conditions unknown at present, might establish the disease in the nervous system and result in some degree of infection, but be overwhelmed by the natural or induced protective mechanism of the body.

We have had 1 case in a dog which indicates apparent recovery following clinical manifestation of rabies.

Case 1.—A 3-month-old Cocker Spaniel was owned by a Mr. J. living in a neighborhood in which rabies has been enzootic for some time. During January, 1952, there were several unconfirmed reports of rabid dogs in the immediate neighborhood and one confirmed by laboratory examination. This Cocker Spaniel was allowed free range at night and about January 29 or 30, a dog fight occurred in Mr. J.'s backyard during the night. Because of this incident and the fact that rabid animals were reported in the community, Mr. J. had the dog vaccinated against rabies on Feb. 6, 1952. A single injection of brain tissue antirabic vaccine was given.

On February 23, or about three weeks after probable exposure, the animal became unusually playful and active, running under furniture and attempting to pull the bedspread off the bed; it showed some tendency

to bite. Mrs. J. scuffed her foot at it and was bitten slightly on her shoe. A 2-year-old daughter was playing in the backyard and the dog knocked her down, started pulling at her hair, and scuffling with her, but did not bite her as far as could be determined. On February 24, the dog began snapping at objects, barked, growled, and bit Mrs. J. on the foot. It was then taken to a veterinary hospital where a diagnosis of rabies was made. At that time, the dog was nervous, irritable, snappy, would grab a stick when thrust in the cage, and refused food and water. On February 28, it returned to an apparently normal condition, began eating, and could be handled without danger. The neighbors and other interested parties kept calling the hospital regarding the dog's condition until it became necessary to destroy the animal on March 3. The head was removed for microscopic examination of the brain. Numerous Negri bodies were found on smear examination. Mice were injected intracerebrally with portions of brain and salivary gland. The mice injected with brain tissue developed typical rabies with Negri bodies, which confirmed the laboratory diagnosis. The mice injected with salivary gland tissue were positive for rabies, indicating that there was virus in the saliva, and providing a positive confirmation of the clinical diagnosis.

SUMMARY

This is a report of an apparent recovery from rabies after the development of clinical symptoms, in which the clinical diagnosis of rabies was confirmed by laboratory examination and recovery of the virus from the brain tissue and salivary gland. It is unfortunate that circumstances made it necessary to destroy the dog before a longer period of observation could have been used to establish conclusive proof of recovery from the disease.

Tuberculosis in a Buenos Aires Zoo.—Tuberculosis was a common cause of death in coaties, anteaters, and other animals in the Buenos Aires zoo. Since the BCG vaccination of these species was started, no cases have occurred. Contrary to general belief, monkeys seldom contract tuberculosis.—*Vet. Bull., June, 1952.*

From the Georgia State Department of Health, Atlanta: public health veterinarian (Starr); director (Sellers); and director, Division of Laboratories (Sunkes).

Therapeutics of Common Eye Diseases of Animals

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IT IS a pleasure to be here with you today. As a member of a branch of the medical sciences, I bring greetings and feel at home among brother members of another medical fraternity. We both are trying to perform a good task with the same underlying principles but with different types of patients. At times, I wish I had your patients instead of mine. Seriously, however, all of medicine is indebted to your branch of the medical sciences for many of the priceless animal experiments, in both the field of therapeutics and surgery, which have helped advance medicine to its present high plane.

A discussion of the common eye diseases and the therapeutics thereof could be endless, so I shall limit this discussion to its application to small animals and to my experiences as consultant to the Huntington Dog and Cat Hospital.

Cataract Extraction.—The question of cataract extraction in the small animal has received much publicity. You have seen the excellent movie prepared by the American Veterinary Medical Association, yet I feel sure many questions remain unanswered. The general policy in the preoperative period of cataract extraction limits itself to a consideration of the life expectancy of the animal and its physical condition. It is needless to say that the animal which is in poor physical condition and has a short life expectancy is not a candidate for this delicate surgery.

The surgical procedure is carried out under a general anesthesia and with the maximum of sterile technique. Sutures (black silk) are used to retract the lids and the speculum is inserted to insure retraction. The pupil is dilated widely by alternating the use of neosynephrine Hcl (10 %) and atropine sulfate (1 %) with pontocaine every three minutes for three instillations. Then the eye is fixed with

fixation forceps and the corneal incision is made with a Graefe knife, starting at the temporal side of the cornea and transfixing it out at the nasal side. The knife is gently but slowly brought up to cut the upper portion of the cornea near the limbus. After this, two black silk sutures are placed through the sclera and the cornea—one at the 10 o'clock and one at the 1 o'clock position. Next, a complete iridectomy is made at the 12 o'clock position. The capsule forceps is used to break into the lens and by counterpressure the lens is slowly tumbled out of the eye through the incision. The sutures are tied and atropine sulfate (1 %) ointment and an antibiotic ointment are instilled. The lids are sutured shut and a large rubber collar is placed around the neck of the animal.

The procedure is not devoid of complications such as vitreous loss, intraocular hemorrhage, postdislocation of the lens, incarceration of the iris in the incision, infective uveitis, and glaucoma.

The postoperative care resolves itself into careful dressing of the wound, avoidance of trauma to the eye, keeping the pupil dilated with atropine and sterile with antibiotics.

The final vision obtained is not perfect but the animal is able to see.

Enucleation.—General anesthesia is also used in enucleation of the eye. The lids are retracted by the speculum, the conjunctiva is divided at the limbus and undermined, the muscles are cut at their insertion, the eye is freed and, finally, the optic nerve is severed. The remnants of Tenon's capsule and muscles are united with catgut and the conjunctiva is closed, also with catgut. The lids are sutured after the instillation of an antibiotic ointment and pressure.

Foreign Body of the Cornea.—One of the more common ocular problems in the animal is a foreign body of the cornea.

This condition is productive of a corneal ulcer and possible subsequent loss of the eye. The management entails the use of a general anesthetic or pontocaine (0.5 %) to the eye. Then by means of oblique light as

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illumination, a spud or sharp instrument is used to remove the embedded foreign body. If metallic, the rust ring should be removed *in toto*. The cornea is next stained with fluorescein (2 %) solution and the excess washed off with normal saline solution. If the area staining is large, dilate the pupil with atropine (1 %) ointment and instill an antibiotic or sulfonamide ointment to control infection. If the area of injury is large as noted by the stain of the cornea, the lids are sutured shut.

Corneal Ulcer.—The corneal ulcer is a serious involvement and begins as a dull, gray, or gray-yellow infiltration of a circumscribed portion of the cornea. Suppuration occurs in this area, the superficial layers are cast off, and there is a loss of substance. It may travel across the cornea, go deep, heal, and change directions. If Bowman's layer is destroyed, an opacity results.

In general, remember to stain all ulcers with fluorescein (2 %) (all the ulcerated area will stain green), then dilate and keep the iris dilated with atropine (1 %). Cauterization by silver nitrate (1 %) solution or tincture of iodine along the ulcer tract is recommended; finally, antibiotics, the sulfonamides, cortisone eye drops, and foreign proteins are applied and the lids are sutured. The complications are hypopyon and perforation of the cornea—both dreaded but not always fatal.

Conjunctivitis.—In this condition, which may be chronic or acute, a mixed flora of bacteria and virus is present. A conjunctival smear is helpful in the selection of therapy. The animal's eyelids are matted, and often a red injected bulbar conjunctiva is present. It is important to differentiate an iritis from this condition at an early stage. This may be accomplished by the instillation of neosynephrine Hcl (2½ %) ophthalmic solution or a 10 per cent solution into the eye. If the vessels blanch, it is usually a conjunctivitis. The treatment is penicillin locally at three- to four-hour intervals and systemically; or the sulfonamides or other antibiotics.

Keratitis.—In this condition, the cornea is involved in the pathological process. It appears cloudy or milky and usually is the reason the owner seeks medical attention for the animal. The inflammatory reaction with vascularization of the cornea is con-

trolled by cortisone eye drops every three hours, plus antibiotics. We have used pure beta radiation to cut down the vascularity with excellent results.

Iritis.—This is an extremely painful condition in which the iris is involved in an acute or chronic inflammatory reaction. As the process progresses, it may involve the choroid and ciliary body, producing a true uveitis. In this condition, the pupil is constricted; there may be irregular posterior synechia with a dull anterior chamber, often with cells adhering to the postcornea and producing the picture of the well-known keratic precipitates and cloudy cornea. In these cases, tuberculosis, sarcoidosis, Banti's disease, and the other chronic granulomas must be ruled out.

The treatment includes atropine sulfate (1 %) instilled at frequent intervals, with neosynephrine Hcl (10 %) to break the adhesions (postsynechia); systemic penicillin, heat, foreign proteins, cortisone; and, occasionally, paracentesis of the cornea.

Some of the complications of iritis may be permanent and interfere with vision, *i.e.*, posterior synechia, plastic deposits over the pupillary area and lens to produce occlusion of the pupil, or even an iris bombé which may lead to secondary glaucoma and blindness. In animals, this condition may develop so rapidly that medical intervention is impractical.

Glaucoma.—This condition is surprisingly common in animals. In glaucoma, the "draining apparatus" of the eye is impaired. The picture presented is a hard, tense eyeball with a deep anterior chamber and a milky cornea with a so-called "butterfly" appearance. The theory of the production of this condition is the occlusion of the canal of Schlemm which is the drainage system of the anterior chamber. This causes an increase in intraocular pressure particularly on the lip of the optic nerve, resulting in a loss of vision due to pressure on the nerve fibers there.

The treatment here must be energetic to save the eye. Pilocarpine Hcl (4 %) every hour, or three or four times a day, depending on the condition, is used with eserine and florophyl (1 %) solution twice a day. If these measures are of no avail after twenty-four to forty-eight hours, surgery is indicated, either paracentesis or a filtering operation to relieve the pressure immediately.

THERAPEUTIC AGENTS

For surface anesthesia, we use pontocaine (0.5 %) solution applied topically to the eye. We have found that many animals are sensitive to butyn, and cocaine solutions cause corneal desquamation.

For the local anesthesia injected around the lids for akinesia and retrobulbar block, we use a 2 per cent solution of novocaine with 8 drops of adrenalin (1:1,000) to the ounce, adding 150 to 200 turbidity units of alidase (hyaluronidase) to help spread the solution.

Antibiotics.—For severe eye infections, we prescribe penicillin (the solution, not the ointment, usually with 1,000 units per cubic centimeter of solution) to be administered every two to three hours. We also use it systemically (usually 400,000 units daily for a minimum of three days), since it is excreted rapidly in the urine and its action is not impeded by exudate or pus. It is ineffective on gram-negative bacilli.

Aureomycin, terramycin, and chloromycetin are administered in 250-mg. doses in capsule form. Bacitracin and tyrothricin are given in 0.2 per cent (per cubic centimeter of solution) doses but these do not have as broad a spectrum as the other antibiotics and are not used except topically, or in mixed solutions to body cavities. Streptomycin is specific for gram-negative bacilli and tuberculosis and is being used almost exclusively for the latter disease.

Chemotherapy.—Sodium sulfacetamide 30% solution or in the 10 per cent ointment form is probably the best of the chemotherapeutic agents for use in diseases of the eye. It is a sulfonamide and has the same organism spectrum (*i.e.*, gonococcus, meningococcus, hemolytic Streptococcus, Staphylococcus, *Bacillus welchii*, pneumococcus, trachoma, etc.). None of the sulfonamide drugs are effective in the presence of secretion or pus, in counterdistinction to the action of the antibiotics.

ACTH and Cortisone.—Although commonly associated in action and name, the two drugs are separate and distinct in final action. Whereas ACTH is a pituitary fraction which stimulates the entire secretory mechanism of the adrenal gland, acting as a stimulant, cortisone is substitution therapy, being the actual secretion of the Group I steroids of the adrenal gland. Thus, we see that if the adrenal gland is not atrophic or diseased, ACTH can work;

but if the gland is functioning poorly or not at all, ACTH is wasted, while cortisone being substitution therapy can be given if either of the above conditions exists.

In the diseases of the eye we commonly use cortisone. It is used in diluted form 25 mg. (1 cc.) diluted to 5 cc. with special diluents or saline, using one drop every two or three hours; or we inject 0.2 to 0.5 cc. subconjunctivally on the globe every two or three days. It is also used systemically and can be injected retrobulbarly.

These drugs act in a mysterious manner to suppress or stop the inflammatory process, giving us valuable time to save the vision. We use it commonly in iritis, episcleritis, keratitis, allergic manifestations, and specific conjunctivitis, plus intra-ocular involvements.

SUMMARY

A brief review of the therapeutics of common eye diseases is presented.

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The Livestock Sanitary Committee at Sioux City, Iowa, reports that in a four-month period (February to May, 1952), 46,198 slaughtered cattle were examined for grubs at that market. In February and March, over 64 per cent were grubby. The total monetary loss in hides was \$16,220.

The mercury column in a fever thermometer is about one-tenth the breadth of a human hair.—*Science News Letter*, July 12, 1952.

The Immunological Relationship of Myxoma and Fibroma Viruses

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NICHOLAS¹ has recently discussed the possibilities of rabbit control by the artificial spreading of myxoma virus. The infection is carried by blood-sucking insects, by contamination of the food with purulent discharge from the nose and eyes, by transmission of the latter through flies, and, finally, by direct contact. Under suitable conditions, large areas can be freed from the rabbit pest. Infectious myxomatosis has shown a high degree of specificity toward rabbits; besides this species, only chicken embryos could be infected with the agent. Insusceptibility of human beings was demonstrated by the self-experiments of Burnet, Fenner, and Ross.

Our aim was to investigate whether myxomatosis might attack young chicks and to study the possibility of protecting domestic rabbits from the epizootic.

METHODS

The Moses strain of myxoma virus was obtained from the A. T. C. C.* and carried in three intratesticular rabbit passages and, subsequently, in six chorioallantoic passages. The OA strain of fibroma virus was carried in this laboratory through intratesticular rabbit passages. New Zealand White male rabbits of 2,000 to 3,000 Gm. body weight, and White Leghorn chicks, hatched in this laboratory, were used.

MYXOMATOSIS IN CHICKS

Into the pectoral muscle of 25, 1-day-old chicks, 0.2 ml. of 10 per cent saline suspension of myxoma-infected rabbit testicle from the third rabbit passage was injected. Twenty-five other chicks received injections intramuscularly of 0.2 ml. of 10⁻² dilution of a suspension of pooled and finely ground, infected chorioallantoic membranes from the sixth egg passage. The chicks were observed for three weeks, during which no symptoms of any disease could be detected.

From the LaWall Memorial Laboratory of Pharmacology and Biochemistry, Department of Pharmacology, Philadelphia College of Pharmacy and Science, Philadelphia, Pa. This study was aided (in part) by a grant from the Lederle Laboratories; Catherina N. Sideri is a Lederle Research Fellow.

*American Type Culture Collection, Washington, D. C.

IMMUNIZATION OF DOMESTIC RABBITS AGAINST MYXOMATOSIS

Shope^{2,4} has shown that rabbits recovered from fibroma infections were resistant to myxomatosis. Hyde⁵ produced a relative immunity in rabbits against myxomatosis by immunization with the heat-inactivated homologous virus. The latter data could not be confirmed by McKee⁶ who found, however, that inactivated virus plus heat-inactivated type III pneumococci are able to confer immunity against myxoma virus. McKenney and Schillinger⁷ tested the uses of fibroma infections to produce immunity against myxomatosis. Shope^{2,4} pointed out that such procedures may not be practical since fibroma virus can not readily be stored in an active state.

We have stored fibroma-infected rabbit testicles in 50 per cent glycerin in a freezer for about six months. Then, this material was carried through intratesticular, subcutaneous, and intracutaneous passages. Material from all of these passages was passed further by all three routes of inoculation. It was observed that the stored material was not infectious when given subcutaneously or intracutaneously, yet in the testicles it produced typical lesions. Virus from this first testicular passage caused inflammatory reactions in the skin but no tumor formation. After the third testicular passage, the infectivity to the skin was restored and the virus could be carried by subcutaneous or intracutaneous inoculations. All rabbits which were used in these studies were inoculated with myxoma virus: (1) after their fibroma cutaneous lesions had regressed; or (2) if no reaction was noted after three to four weeks; or (3) after their testicles had been removed for subsequent passages and they had recovered from the operation. The animals which previously did not develop fibromas or exhibited only some inflammatory reactions all died of myxomatosis. About two-thirds of the animals which developed typical fibromas (7 out of 12) proved to be resistant to myxomatosis.

CONCLUSIONS

1) It appears that only the typical fibroma is able to confer active immunity to two-thirds of the rabbits against myxomatosis. Nonvirulent fibroma strains are ineffective.

2) An induced myxomatosis epizootic intended to eliminate agricultural pests would not be dangerous to day-old chicks.

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Ostertagiasis in Virginia

One hundred and forty yearling Herefords and Angus were wintered in a large barn with access to a field which had maintained cattle for four years. When placed on pasture in the spring, some started scouring and the condition gradually became more severe. On July 20, they were all treated with phenothiazine and this was repeated on July 30 for those showing clinical symptoms. On August 23, they were again treated with phenothiazine and on September 4 with a copper nicotine mixture. On September 11, a second calf was autopsied and an enormous number of mature Ostertagia was found in the abomasum. Stereoscopic examination showed the mucous membrane to be thickly studded with lesions containing developing parasites. Even if further infestation was prevented, the development of these embedded parasites would produce a heavy infestation for at least a month. The calves, removed to a clean lot, were given individual daily doses of 3 to 4 Gm. of phenothiazine for a week, were untreated the second week, then the treatment was repeated the third week. This was done to destroy the parasites as they migrated from the mucosa. The yearlings were then divided into three groups.

One group was turned back on the old field, the other two groups were placed in separate clean fields. Fifteen had died before this treatment was begun on September 15 and 10 died subsequently. Most of the latter were animals which had been sent back to the old pasture.—*Auburn Vet., Spring, 1952.*

Tetanus and Chloral Hydrate

A 4-year-old, light draft mare was presented to a hospital in Ireland with a sudden well-developed case of tetanus. Her muscles were rigid and the membrana nictitans extended almost over the whole eye. She was treated chiefly with a 12½ per cent solution of chloral hydrate given intravenously until muscular relaxation commenced. She was given 1½ oz. of chloral hydrate twice daily for two days. Being somewhat improved, she was given 1 oz. the third day. On the seventh day, again being restless, she was given another ounce of chloral hydrate. Except for one abscess at the site of injection she made an uneventful recovery.—*Irish Vet. J., May, 1952.*

Temperature Adaptation in the Baby Pig

The body temperatures of baby pigs was studied under varying conditions and temperatures. The temperature regulating mechanism is not fully developed in the newborn pig. It may drop 3 to 13 degrees during the first thirty minutes after birth. It will gradually return to normal in about two days when the room temperature is from 60 to 75 F. But it takes about ten days to get up to normal in freezing temperatures. Pigs, when chilled, pass into a coma sooner if fasted than if they have access to sow's milk. There was an increase in blood glucose when 1-day-old pigs were chilled at freezing temperatures. Pigs fasted eight hours showed less glucose increase than those fasted only three to five hours.—*J. Anim. Sci., Feb., 1952.*

Two cowmen with open pulmonary tuberculosis of the bovine type are reported, from Holland, to have spread the infection to 100 cattle and 42 cattle, respectively.—*Vet. Bull., June, 1952.*

Near Fatal Hemolytic Anemia During Anti-Epileptiform Convulsion Therapy with Tridione

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A search of the veterinary literature reveals very little on idiopathic epilepsy in dogs. Both Brumley¹ and Kirk² discuss the subject briefly but do not classify the different types of epilepsy, as is done in the human subject with the aid of the electroencephalograph. Kirk's² description of the seizures in dogs closely resembles the description of a grand mal seizure, as given by Cecil³ in his "Textbook of Medicine." For years, drugs such as phenobarbital, bromides, and dilantin sodium have been used, either alone or in combination, with only occasional success in animals.

A few years ago, tridione[®] was introduced and, because of its success in the human field, it has been used by many veterinarians in treating canine epilepsy. Tridione is used primarily for the control of the petit mal triad in man. Dilantin sodium is the drug of choice in the treatment of grand mal. The above can be used jointly in treating mixed types of seizures. In my own hands, I have found tridione helpful in many cases, although to my knowledge no data on its use have ever been published in the veterinary literature.

Pharmacologic Considerations.—Tridione (3,5,5-trimethyloxazolidine-2,4-dione) is a synthetic drug. The work of Goodman *et al.*⁴ shows that tridione is capable of completely preventing all central excitatory effects of a dose of metrazol in 95 per cent of the animals tested (cats, monkeys, mice, and rats). Large doses of tridione will protect against larger doses of metrazol.

Animals given depressant doses of phenobarbital could not be restored to normal with metrazol. Animals given excessive doses of tridione could be restored to normal with metrazol.

As the toxic dose—approximately 2 Gms./Kilg. of body weight—is approached in animals, sleep, unconsciousness and respiratory depression occur. . . . Peripheral blood studies on rats and dogs during prolonged administration of tridione failed to show any significant trend or pathological changes.⁵

Report of a Case.—On Nov. 25, 1951, a 5-year-old male Cocker Spaniel was presented for a mild skin ailment. In discussing the dog's anamnesis, it was mentioned that the dog had suffered from epileptiform convulsions at irregular intervals, varying from once in two months to three times daily. At this time, they were occurring daily. Since tridione had been successfully used on others before—with no untoward reactions—the drug was prescribed. The dose used was 0.3 Gm. three times a day.

On Dec. 23, 1951 (about one month later), the dog was presented to me after being ill for about forty-eight hours. The owner reported the dog seemed weak and that the skin on his abdomen seemed extremely pale. The patient had anorexia and had vomited once.

Examination revealed a markedly anemic animal, with a normal temperature and a lack of other symptoms. Vitamin B₁₂ and liver injections were given, a multivitamin and liver capsule (vi-litron) was prescribed, and the owner was instructed to discontinue the tridione.

The next day, the dog was again presented. He appeared dangerously weak and could hardly walk. Intragel (250 cc.) was given, intravenously, along with vitamin B₁₂, liver, and iron. A fecal examination was negative. Blood and urine samples were taken and the dog was sent home. Because of a holiday, the laboratory report was delayed until December 26. The count at that time was as follows:

Blood	
Hemoglobin	3.7 Gm.
(Normal, 12.5 to 17.3 Gm.)	
Erythrocyte count per cmm.	1,400,000
Color index	0.9
Leukocyte count per cmm.	25,000
Differential count	
Neutrophils	
Segmented	64 per cent
Stabs	23 per cent
Juveniles	4 per cent
Lymphocytes	
Small	5 per cent
Large mononuclears	3 per cent
Eosinophils	1 per cent
Remarks: The red cells showed an occasional cell with polychromasia and an occasional normoblast.	
Note: Blood received hemolyzed.	

Urine	
Color—dark amber	Albumen—negative
Sp. gr.—1042	Sugar—negative
Bile—++++	

Dr. Lawrence is a practitioner in Rego Park, N. Y.

On December 26, the dog was hospitalized, and that night a whole blood transfusion of 200 cc. was given, along with vitamin B₁₂ and liver. The blood was a life-saving necessity, as evidenced by the extremely low hemoglobin and erythrocyte level. The dog was moribund and was too weak to raise his head. On December 27, the dog appeared the same. The temperature was 102.5 F. and penicillin, along with liver and vitamin injections, were given. With the exception of this one day, the temperature remained normal throughout the illness. On December 28, another transfusion of 250 cc. of whole blood was administered; vitamin B₁₂, liver, and penicillin were also given.

Immediate improvement was noted by the return of the appetite and a more lively attitude. The dog continued to eat and gained strength, with a gradual return of color to the tongue and mucous membranes. The dog was discharged on January 2, and the owner was instructed to continue the vi-litron medication and to feed fresh liver.

On March 20, 1952, the owner reported that the dog had never been better but did have one small convulsive seizure about three weeks before.

There is a strong suggestion that the tridione was the etiologic agent in the development of the blood dyscrasia in this dog. For the benefit of others using this drug, it is important that this danger be kept in mind and that precautions be taken. The opinion of the Pharmacology Department of Abbott Laboratories is in part as follows: "... the dosage schedule which you have used (0.3 Gm. t.i.d.) is not too large a dose and undoubtedly this is a case of an individual idiosyncrasy." In cases such as these, i.e., where toxic symptoms arise, they recommend the use of phenurone because, in using this drug, it has been experimentally impossible to produce a blood disturbance in dogs in their pharmacology laboratory.

Several similar cases in man have been reported in the medical literature. Harrison, Johnson, and Ayer⁶ reported a case of fatal aplastic anemia as early as 1945. This patient did not show symptoms until six months of drug therapy had elapsed. After a few weeks, the patient succumbed in spite of blood transfusions, folic acid, liver, etc.

Mackay and Gottstein⁷ reported another

fatal case in which it took nine months for symptoms to appear in the form of headache, weakness, and fatigue, with a pronounced hemorrhagic tendency. The patient succumbed to a profound hemolytic and granulocytic process seventeen days after the onset of symptoms.

Mustard and Livingston⁸ have reported other cases in which patients who developed leukopenia were returned to normal in six weeks following withdrawal of tridione.

The drug is effective in the treatment of petit mal, but the multiplicity of toxic effects and the tendency in the human subject to increase the frequency of grand mal seizures should be considered when prescribing it.

When tridione is used, the owner should be advised to contact the veterinarian should any unusual symptoms appear. The patient should be seen at two- to four-week intervals and, when practical, blood counts should be made.

The combined use of tridione and dilantin sodium, as well as the use of either drug alone, is worthy of further trial in epilepsy of the dog.

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If strenuously exercised, some pigs affected with atrophic rhinitis may manifest dizziness, staggering gaits, and convulsions due to anoxia.—H. C. Smith, D.V.M., Iowa.

NUTRITION

The Effect of Feeding a High Level of Crude Protein in the Drylot Ration of Fattening Hogs

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NUMEROUS REPORTS from the field indicate that many hog producers feel that there is danger in overfeeding protein. Illness and deaths in swine herds are sometimes diagnosed as due to "protein poisoning."

Robison¹ reported the results of a preliminary trial in which 4, 70-lb. pigs were fed a 42 per cent protein ration for thirteen weeks. The pigs averaged 1.34 lb. gain per head daily and consumed 3.78 lb. of feed per pound of gain. Robison stated that this protein level caused no untoward effect other than loose stools.

In a later, more critical experiment Robison¹ fed rations containing 9, 17, 26, 34, and 51 per cent crude protein for 168 days. The basal ration contained yellow corn, ground alfalfa, yeast, cod liver oil concentrate, and minerals. The crude protein content of the rations was increased by adding different amounts of a supplement of dry-rendered tankage 25.0, herring meal 25.0, soybean oil meal 37.5, and cottonseed meal 12.5. Robison¹ stated, "From the beginning, scouring was prevalent and persisted among the pigs fed 26 per cent or more of protein. Each increase in protein increased the severity of the scouring. So far as was observed, the scouring had no serious detrimental effect on the pigs."

The experiment reported herein was designed as a practical demonstrational test to obtain further data on this problem. The purpose was to study the effect of feeding a ration containing 42 per cent crude protein compared with a ration containing 13.6 per cent crude protein for fattening hogs in drylot that averaged 129 lb. initially.

From the College of Agriculture, University of Illinois, Urbana.

¹Robison, W. L.: Effects of High Protein on Pigs. Am. Soc. Anim. Prod. Proc., (1940): 149-152.

EXPERIMENTAL METHODS

The 26 pigs used in this test were from the 1950 fall farrow. They had been self-fed shelled yellow corn and a protein-vitamin-mineral supplement (100 lb. meat scrap, 100 lb. solvent soybean oil meal, 100 lb. dried corn distillers' solubles, 100 lb. dehydrated alfalfa meal, 2 lb. aurofac vitamin B₁₂ and antibiotic feed supplement,* 15 lb. of steamed bone meal, and 8 lb. of trace-mineralized salt) free-choice on pasture lots during the winter of 1950-1951. Breeds represented were crossbred Duroc-Poland China, Hampshire, Poland China, Duroc, and Chester White.

The rations were self-fed in a concrete drylot during the test and are listed in table 1.

TABLE 1—Composition of Rations (Self-Fed, Drylot)

Items	Lot No. and treatment	
	1	2
	Basal ration (%)	High-protein ration (%)
Ground yellow corn	76.9	—
Solvent soybean oil meal	7.5	84.4
Dehydrated alfalfa meal	10.0	10.0
Meat and bone scraps	—	—
(50% crude protein)	5.0	5.0
Antibiotic feed supplement ¹	0.1	0.1
Salt with trace minerals	0.5	0.5
Total	100.0	100.0
Dry matter ²	85.22	89.17
Crude protein ²	13.62	42.06
Ether extract ²	4.00	1.85
Crude fiber ²	4.62	6.72
Ash ²	4.35	7.92

¹Bicon TM-5 furnished by Chas. Pfizer & Company, Inc., Brooklyn, N. Y. Guaranteed to contain 5 Gm. of terramycin per pound.

²By actual analysis.

*Donated by Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y., and guaranteed to contain 1.0 mg. of vitamin B₁₂ and 1.0 Gm. of aureomycin per pound.

RESULTS AND DISCUSSION

The results of the experiment are briefly summarized in table 2. There were no death losses in either lot. The high protein ration had a laxative effect on the pigs, but

TABLE 2—Effect of Feeding a High Level of Crude Protein in the Drylot Ration of Fattening Hogs (Spring, 1951)

Items compared	Lot No. and treatment	
	1 Basal ration	2 High-protein ration
Number of pigs	13	13
Days on test	42	42
Ave. initial wt., lb.	129.0	129.0
Ave. final wt., lb.	225.0	177.0
Ave. daily gain, lb.	2.31**	1.13
Ave. daily feed per pig, lb.	9.16	5.66
Ave. feed per lb. gain, lb.	4.04	5.0

*Highly significant (1% level) over lot 2.

this scouring had no apparent detrimental effect. The pigs in both lots finished the test in apparently good health. There was no outward evidence of disease or toxic effects throughout the test.

Seven of the pigs in lot 2 and 4 of those in lot 1 were slaughtered at the end of the test and examined postmortem. Gross changes were confined to the kidneys which were enlarged up to one and one-half times. A diffuse hemorrhage was noted in the medulla of one kidney. Histopathological examination of the kidneys revealed occasional foci of lymphocytic infiltration which probably was not related to the ration. The only change present that seemed to have any relation to the high protein diet was a rather consistent dilation of the tubules. Some of the tubules were filled with an amorphous material. Others presented very little of this material. The glomeruli showed some exudate and appeared to be somewhat enlarged and cellular. These changes are relative in character, however, and it is difficult to say if they were definitely abnormal.

For pigs slaughtered, the kidneys of pigs fed the high protein ration weighed 43 per cent more than the kidneys of the controls.

Robison reported that the kidneys, livers, and spleens of the pigs fed the 51 per cent protein ration were approximately 48, 23, and 24 per cent larger, respectively, than those of pigs of similar weight fed more nearly normal rations. He suggested that they became hypertrophied because there was more work for them to perform when

high protein rations were fed. In the test reported herein, the difference in kidney weight is attributed to the extra work required of the kidneys in eliminating excess urea formed from a ration high in protein.

The high protein ration was less palatable than the control ration. The pigs fed the control ration (lot 1) gained twice as fast as those in lot 2 and required 19 per cent less feed per unit of gain.

The results of this test do not support the theory of "protein poisoning."

SUMMARY

Two lots of 13 pigs each were fed in drylot for forty-two days to study the effect of feeding a ration containing 42 per cent crude protein compared with a ration containing 13.6 per cent for fattening hogs that averaged 129 lb. initially.

The high protein ration had a laxative effect on the pigs but caused no other apparent symptoms. There was no outward evidence of disease or toxic effects throughout the test. Autopsy results revealed no abnormalities other than enlarged kidneys (43% larger than from control pigs) and a consistent dilation of kidney tubules.

This test did not produce evidence to support the theory of "protein poisoning."

Riboflavin Deficiency in Pigs

At the University of Idaho, 8 pigs only 48 hours old were placed in individual cages and fed a synthetic milk which contained no riboflavin. Riboflavin was added to the ration of 4 control pigs. Signs of deficiency in the others appeared after one to two weeks. They failed to gain, lost their appetite, their hair and skin became coarse, dry, and scaly, and they developed a severe diarrhea with rectal hemorrhage and inflammation of the anus. They also became sensitive to light and developed a stiff gait—walking on the tips of their toes. After about four weeks, adding riboflavin to their ration brought a definite improvement except in 1 pig which already was so weak that it died.

After six days, the riboflavin was again removed and the symptoms recurred. Riboflavin was again added to the ration and improvements were again quite definite. The deficient pigs soon regained their normal external appearance except that they

were much smaller than the controls. However, on autopsy, the liver, kidney, and other tissues of these pigs showed irreparable injury.—*J. Anim. Sci., May, 1952.*

Comparison of Field-Cured and Barn-Cured Alfalfa Hay.—The University of Illinois reports that barn-cured alfalfa hay may contain 14 per cent more leaf, 45 per cent more carotene, 12 per cent more riboflavin, and 9 per cent more crude protein than field-cured hay. Under bad weather conditions, the difference would be greater. The barn-cured hay was allowed to wilt in the fields for a day or two during which time it seemed to pick up enough vitamin D to prevent rickets. Then it was removed to the barn and dried by blowing air, preferably heated, through the loose hay.—*J. Anim. Sci., May, 1952.*

Drying at High Temperatures Reduces the Value of Corn.—The University of Nebraska reports that corn may have its feeding value reduced if it is heated above 140 F. in the drying process. It is apparently less palatable and as the temperature is increased the nutritive value of the protein is adversely affected. In experiments with rats, the weight gain was reduced up to 50 per cent. However, the reduced feeding value is less apparent when fed to hogs and especially to mature ruminants.—*J. Anim. Sci., May, 1952.*

Pantothenic Acid for Pigs

To test the effect of protein on the requirements for vitamin B₁₂ and pantothenic acid in pigs, the Michigan State Agricultural Experiment Station ran an experiment with 6-week-old pigs. They used two basal rations, one containing 14 per cent and the other 17.8 per cent crude protein. The addition of pantothenic acid to the low protein ration resulted in a marked increase in the rate of gain, which was not bettered when both pantothenic acid and vitamin B₁₂ were added.

The pigs on the high protein ration made a much better gain than did those on the low protein ration; therefore, the benefits of adding either pantothenic acid alone or both pantothenic acid and vitamin B₁₂ were considerably less marked. Apparently, the higher level of protein has a sparing

effect on the pantothenic acid requirement for pigs.—*J. Anim. Sci., May, 1952.*

Cobalt Deficiency in Lambs

Cobalt deficiency in animals was first identified in Australia in 1935. The exact quantitative needs for cobalt are not known, but 0.1 mg. daily to cattle or sheep usually brings a prompt recovery. A cobalt deficiency called "pining" has recently been experimentally produced in pregnant ewes in Scotland. The lambs from these ewes and others from control ewes were weaned when 10 weeks old. Lambs from the control ewes were given a cobalt supplement; those from deficient ewes were not. The first group made normal gains and weighed 100 lb. in about forty weeks. The deficient group made normal progress until they weighed about 40 lb., after which they failed to gain and developed deficiency symptoms. Several of them responded immediately when given 10 mg. of cobalt weekly.—*Nutr. Rev., June, 1952.*

Anemia in Baby Pigs

Nutritional anemia, which affects young pigs when deprived of soil and vegetation, is usually present when the pigs are 5 days to 6 weeks old but it is most marked at about the third week. At an Ontario experiment station, various methods of prevention were tried.

Sods sprinkled with iron sulfate solution were quite satisfactory but required considerable labor, since the sods have to be gathered in the fall and stored all winter. And then the pigs would seldom eat much sod until they were 7 to 9 days old and anemia had started. Placing 3 gr. of reduced iron on the pig's tongue proved to be a more successful treatment, if started when the pig was 2 days old and repeated once a week for three weeks.—*Canad. J. Comp. Med., April, 1952.*

It was recently shown that a ration such as was recommended in 1934 produced a 2-lb. broiler at 10 weeks, with 3.45 lb. of feed required per pound of gain; whereas, a 1951 ration gave 3.1 lb. of broilers at the same age with only 2.71 lb. of feed per pound gain.—*W. W. Cravens, Ph. D., at Am. Feed Mfr. A., May 8, 1952.*

Intravenous Use of Iron

Iron is one element which has not lost its prominent place in medical treatment in recent years. Because of its value in anemias its oral use has been well established but, due to toxicity reaction, its parenteral use has been more limited. In 1947 a saccharated iron oxide was introduced for intravenous use.

A preparation of ferric carbohydrate, made in Sweden, called "astrafer" has proved quite satisfactory. Similar preparations produced in this country and in England are equally effective but seem to cause a slightly greater reaction. Saccharated iron oxide is a negatively charged, colloidal solution of iron oxyhydrate which is stabilized by absorption of alkali and sugar. Iron given intravenously is retained almost quantitatively by the tissues of the body. There is a potential long-term danger of damaging these tissues by the excessive storage of iron. However, large amounts have been given intravenously to animals and no evidence of any structural changes have been noticed.

The indications for the intravenous use of iron are: (1) uncomplicated anemia where the response to the oral use of iron has been unsatisfactory; (2) where iron given orally cannot be tolerated; and (3) when the anemic condition is discovered so late that there may not be time for the assimilation of an adequate amount of iron given by mouth.—*Proc. Mayo Clinic, July 16, 1952.*

An experiment by the U.S.D.A. revealed that calves on scanty rations for six months will produce as good beef as those regularly well fed. Pairs of identical twins were used, one of a pair being full fed a well-balanced ration while its twin was given only 50 to 75 per cent of the same ration. After the restricted feeding period, the calves were full fed and usually reached the 1,000-lb. slaughtering weight about three months after their twin. Carcass tests indicated no significant differences in the quality of their meat.

The Stability of Vitamin B₁₂.—Vitamin B₁₂ was mixed with four different multi-vitamin materials, placed in capsules, and stored at room temperatures for more than thirteen months. When tested, the maxi-

mum losses were from 9 to 31 per cent of the vitamin B₁₂. It was significant that the valence of the iron compounds present in the capsule material had no variable effect on the B₁₂ stability.—*J. Am. Pharm. A., July, 1952.*

Cottonseed Meal for Swine

The University of Georgia found, as part of an experiment, that weaned pigs gained an average of 0.63 lb. daily on a ration of corn, 63 per cent; degossypolized cottonseed meal, 35 per cent; and mineral, 2 per cent. When one half of the cottonseed meal was replaced by soybean meal, they gained 1.16 lb. daily. It is thus evident that (a) the removal of gossypol from the cottonseed meal has made it nontoxic for pigs, and (b) its value as a protein supplement is much less than that of soybean oil meal.

The addition of either penicillin or streptomycin to the cottonseed meal ration definitely increased the rate of gain but not as much as did the substitution of soybean meal for the cottonseed meal.—*J. Anim. Sci., Aug., 1952.*

Fluoridated Salt.—For the prevention of dental caries, fluorine may be added to salt rather than to drinking water. It would then be available for rural populations as well as those having access to community supplies of treated water.—*Sci. News Letter, April 26, 1952.*

Roughage for Calves and Yearlings.—Purdue University reports on the value of the various roughage feeds for wintering calves or yearling steers. When fed with a standard supplement, the average daily gains were: with either oat straw or soybean straw, 0.78 lb.; with ground corn cobs, about 1.4 lb.; with corn silage, about 2.1 lb.; with grass silage, about 2 lb. When urea replaced part of the soybean meal supplement for the ground cob ration, no significant difference in growth rate occurred.—*J. Anim. Sci., Aug., 1952.*

Experiments indicate that antibiotics are not stored in the body. There is no carryover effect except the extra weight gained.—*W. M. Beeson, Ph.D., Lafayette, Ind.*

EDITORIAL

A Welcome to the New Deans

As this issue of the JOURNAL comes from the press, a new academic year has begun in our schools of veterinary medicine, several under new deans. We are usually quite aware of a new class of freshmen enrolling each fall, then four short years later moving on, most of them at least, as graduates. While we note this constant measured movement of the student group, we are often less aware of another group, the faculty, which also is constantly entering or leaving the venerated halls of our educational institutions. A student's college sojourn is quite definitely prescribed, a faculty man's is not. Some remain only a few years but, fortunately, most remain much longer.

We are apt to think of many of the faculty as fixtures, as permanent parts of the school. There are few more noble arts than teaching and those who dedicate their lives to it are often about as permanent as man can ever be. From this dedicated group are developed the educational leaders of our profession. From among these leaders are chosen the school administrators, the men whose talents and foresight largely shape the destinies of their schools. Usually, this position bears the title of "dean" but at Ontario, it is the "principal" and at Minnesota, the "director."

Some statistics concerning those who eventually become deans, or the equivalent, may be of interest. A survey of the 19 schools reveals that to date they have been served by a total of 61 deans. The 12 schools which have been operating continuously for thirty-six to ninety years have been served by 49 actual and three acting deans. The average tenure per actual dean, therefore, was 13.9 years. Prior to 1945, the end of the late war, the average tenure was 15.3 years. The longest tenure was that of Dr. Andrew Smith who served as principal at the Ontario school from 1862 to 1908, a total of forty-six years. Dr. David L. White served at Ohio State for thirty-four years and Dr. R. R. Dykstra at Kansas State for thirty-one years. Each

of the 12 older schools has had one dean who served twenty years or longer and Ontario, Cornell, and Washington State each have had two. Fourteen of these deans served an average of twenty-six years and Dr. W. A. Hagan, the fifteenth, is in his twenty-first deanship year at Cornell.

From the end of World War I, when the private schools of veterinary medicine were closing their doors, until the end of World War II, the schools were relatively quiescent. This period might be called the era of state school normalcy. However, the increased demand for veterinary service since the end of World War II has brought on an era of rapid expansion. Not only have seven new schools of veterinary medicine been established during this period, a 58 per cent increase, but all the schools have been filled to capacity. Naturally, this created many vexing problems which must have made it seem, to the school administrators, like an era of nightmares.

Few who have not been directly involved realize what heroic efforts were required to maintain reasonably satisfactory standards at each of the schools during this hectic period. Building or acquiring satisfactory physical facilities, either for a new or for an expanding school, was in itself a real problem. However, since the efficiency of a school depends less on its physical facilities than upon the qualifications of its teachers, acquiring an adequate faculty was the major problem. With the total teaching load for all schools suddenly doubled and competition for personnel from all fields of veterinary activity very keen, the task at times seemed almost impossible but, eventually, it was accomplished.

A third problem which confronted several of the older schools, as well as the new, was that of developing an adequate clinic. If funds are available, the physical facilities and the necessary hands to operate them can usually be provided but money alone can do little towards procuring the clinical material necessary for the proper training of veterinary students. Although considerably

alleviated, this problem still exists for some schools which unfortunately find themselves located in areas where there is a scarcity in the number or in the variety of livestock.

Now with the growing pains of the new schools diminishing, veterinary education would seem to be on the threshold of a less strenuous era, perhaps one of consolidation and greatly increased productivity. The success of the profession's future probably rests more in the hands of the school administrators than with any other group. "Just as the twig is bent, the tree's inclined," and who is in a better position than they to influence the twigs? We may then look well at the corps of veterinary deans.

At present, three schools of veterinary medicine—Iowa, Ontario, and Washington—have newly appointed heads; two others—Minnesota and Pennsylvania—have new acting heads. The deans of the other 14 schools, Cornell excepted, have served from one to twelve years with an average tenure, for the 14, of 6.4 years. The average for all present incumbents is only 4.8 years. The present deans represent several fields of veterinary endeavor, they were graduated by 12 different schools, and their average age is in the early 50's. At that age, perhaps their average tenure may again approach that of earlier times.

The recent retirement of two men has raised the number of living deans emeritus to ten. To this group the JOURNAL would like to say "well done."

And at this start of a new academic year, the JOURNAL would like to extend its cordial best wishes to the newly appointed deans as well as to all others who serve in that responsible capacity.

Vesicular Exanthema Not Yet Controlled

The campaign against vesicular exanthema is proving to be a seesaw battle. While it is being eradicated in one area, it may be appearing in another.

There have been no definite indications that it has spread from any infected herds to neighboring herds. It apparently has always originated from: (a) feeding garbage, presumably containing infected, uncooked pork scraps, or (b) from hogs which became infected while passing through

virus-contaminated yards, or possibly vehicles.

Dr. F. H. Mulhern who spent five years in Mexico as a district supervisor in the foot-and-mouth disease campaign, and also a few months in Canada as a representative of the BAI, has been placed in charge of the vesicular exanthema eradication program. The program is making satisfactory headway in states which are able to cooperate by matching federal funds for the payment of indemnities. By September 15, cooperation had resulted in the eradication of all the infected animals or the slaughtering and processing of all the exposed or recovered hogs in ten states. Three other states had adopted the cooperative agreement and were proceeding with their clean up.

Most of the other states involved have expressed a desire to cooperate when funds can be made available. Some states were considering proceeding with their eradication program, trusting that their legislatures would later reimburse owners with indemnity claims. In these states, federal funds would also be withheld temporarily. In most cases, half the indemnity is being paid from state funds and half from federal funds but in one case, the state is paying a third, the federal government a third, and the owner stands a third of the loss.

On September 15, vesicular exanthema had been diagnosed in areas in 24 states, an increase of eight states during the preceding months. This undoubtedly is largely because many virus-carrying, healthy-looking hogs were slaughtered, through regular channels, before the meat-heating process was inaugurated. While that meat is dangerous only to swine, until it is all used or heat processed, the danger of new infection foci will continue to exist.

This stresses the urgency of reporting all suspicious cases to the state or to the federal veterinary authorities without delay. Unless this is done and effective quarantines set up immediately, all other efforts are relatively futile. Authorities also urge that no specimens be taken to laboratories. This might unwittingly spread the disease and if it should prove to be aftosa (foot-and-mouth disease), it might be a catastrophe. The official should be called to the premises and all differential diagnosis tests be made right there.

New Jersey continues to hold the spot-

light. There is considerable criticism of that state's failure to cooperate with the federal program of eradication. Being one of the leading garbage-feeding states, it is feared that it, like California, may become a reservoir for vesicular exanthema infection. Local quarantines are not being strictly enforced there, possibly because many local citizens would welcome an excuse for having the garbage-feeding establishments, with their odors, banished from the area. However, the eradication of the disease can not be accomplished unless all areas cooperate.

While the veterinary profession cannot be concerned with whether or not garbage is fed, we definitely should put a united shoulder into the push for uniform state laws which would require special supervision of all garbage-feeding establishments. The reasons for this are obvious. State

association committees to study this problem should be created at once and an AVMA committee should be created to work with them.

Hog cholera antiserum and virus inventories were normal in June, but production is now down to about 30 per cent of normal. The quarantine has been removed from at least one major producer but it will probably be sixty days before their new products will be on the market. On the other hand, a few more small plants have been quarantined. The products available will have to be used judiciously.

Excluding California and New Jersey, approximately 165,000 hogs have been affected and 26,000 destroyed. By October 1, all states west of the Mississippi, except Oklahoma and California, should be cleared. Nebraska, which had 13 counties affected, has passed a law requiring that all garbage be cooked before it is fed to hogs.

The K-9 Corps in Korea



—Acme Photo

These 3 German Shepherd dogs of the 25th Infantry Scout Dog Platoon are smelling out the enemy in Korea. They recently arrived from Fort Riley, Kansas, where they received their training. Their unique sense of smell is a great aid to patrols on scouting missions.

From left to right are—Pfc. Edwin Bristol, Lincoln, Neb., with "Hamlet"; Pfc. Larry Pollard, Detroit, with "Orrin"; and Pfc. Houde L. Green, Kansas City, Mo., with "Barrie."

CURRENT LITERATURE

ABSTRACTS

Influence of Environmental Temperature on Fasting Newborn Pigs

In this experiment, designed to study the influence of environmental temperature upon fasting newborn pigs, it was found that rate of development of critical hypoglycemia varied inversely with temperature of environment. Higher temperatures apparently conserved natal carbohydrate reserves; this effect may have been augmented to some extent by gluconeogenesis in pigs which lived longer. Critical hypoglycemia was not prevented but was delayed. The practical implications (use of pig brooders) are discussed.—[C. C. Morrill: *Studies on Baby Pig Mortality. X. Influence of Environmental Temperature on Fasting Newborn Pigs. Am. J. Vet. Res.*, 13, (July, 1952): 322-324.]

Recovery of Newcastle Disease Virus

In New Jersey, 36 cases (128 chickens) of respiratory disease were compared for Newcastle virus recovery by chicken embryo inoculation of bone marrow and of spleen and tracheae or tracheal mucous samples. Bone marrow yielded virus five times; the other tissues gave 22 positive recoveries. In 4 other cases where only bone marrow was examined, the virus was recovered once.—[Hasan Baskaya, Helen E. Burd, C. B. Hudson, and J. A. Bivins: *A Comparison of Newcastle Disease Virus Recovery from Bone Marrow and from Pools of Respiratory Tract and Spleen. Am. J. Vet. Res.*, 13, (July, 1952): 405-406.]

Effect on Weanling Pigs of Ration Low in Pantothenic Acid

Eight Duroc-Jersey pigs approximately 8 weeks old, self-fed a ration of 74 per cent corn, 23 per cent soybean oil meal, 3 per cent mineral mix adequately supplemented with vitamins A, D, and B, except pantothenic acid, showed decreased rate of weight gained, inefficient utilization of feed, and colitis accompanied by diarrhea. The ration contained 4.53 mg. of pantothenic acid per pound of feed. Pigs necropsied at intervals throughout the 26-day observation period showed degenerative changes and ecchymotic hemorrhages in the large intestine and, in the latter stages, small superficial discrete ulcers developed. Microscopically, the columnar epithelium showed degenerative changes and marked hyperemia of the lamina propria. Cellular reaction was mainly lymphocytic. The crypts of Lieberkuhn showed cystic dilations and hyperplasia of the lymph nodules. One pig killed

on the twenty-sixth day showed fibroblastic proliferation in the lamina propria. Degeneration and hemorrhage were the principle lesions in the kidneys, adrenal glands, and liver. Control pigs on the same ration supplemented with 10.0 mg. of calcium pantothenate per pound of feed showed no deficiency symptoms or lesions.—[G. L. Sharma, R. L. Johnston, R. W. Luecke, J. A. Hoefler, M. L. Gray, and Frank Thorp, Jr.: *A Study of the Pathology of the Intestine and Other Organs of Weanling Pigs When Fed a Ration of Natural Feedstuffs Low in Pantothenic Acid. Am. J. Vet. Res.*, 13, (July, 1952): 298-303.]

Effect of Added Manganese on Mineral Components of Cattle Blood

No indications of "wheat poisoning" are shown by cattle which are fed manganese in amounts varying from 75 to 200 p.p.m. A decrease in blood magnesium becomes apparent at manganese levels of 100 p.p.m., but normalcy is attained at 150 p.p.m. The addition of manganese to the diet, in the amounts given, appears to have no significant effect on the concentration or metabolism of glucose, iron, calcium, or potassium.—[Patricia Fain, Joe Dennis, and F. G. Harbaugh: *The Effect of Added Manganese in Feed on Various Mineral Components of Cattle Blood. Am. J. Vet. Res.*, 13, (July, 1952): 348-350.]

Chronic Respiratory Disease of Chickens

Chronic respiratory disease (CRD) was identified by embryo and bird inoculation tests in 53 of 60 respiratory cases of chickens submitted for study. Tracheal scrapings of affected chickens, suspended in beef extract broth and treated with penicillin or penicillin and streptomycin, caused embryo mortality and pathognomonic respiratory lesions in embryos. When the treated suspensions were inoculated into infectious bronchitis and Newcastle disease-refractory birds (chickens or turkeys), the pathology of the natural disease was observed. The agent has been isolated from embryos and chicks originating from naturally infected breeding flocks. Mice were refractory to the agent. Streptomycin, aureomycin, chloromycetin, and terramycin exerted an inhibitory effect on the CRD agent in artificially inoculated birds. The agents of CRD and infectious sinusitis of turkeys have many characteristics in common, including the tinctorial properties of elementary bodies, which are demonstrable in sinus exudate and em-

bryo material containing the respective agents.—[H. Van Roskel, Olga M. Olesiak, and H. A. Peck: *Chronic Respiratory Disease of Chickens. Am. J. Vet. Res.*, 13, (April, 1952): 252-259.]

Antibiotic Treatment of Diluted Bull Semen

Fifty-five publications are reviewed. Three original experiments are reported in which dihydrostreptomycin sulfate was compared with other antibiotics in split samples of bull semen diluted in egg yolk-citrate-sulfanilamide as to their fertility-improving ability. Results reported on sixty- to ninety-day per cent nonreturns to first artificial service were as follows: (1) 500 μ g. streptomycin per milliliter gave fertility increases of 4.0 per cent higher than did 50 μ g. of aureomycin; (2) 500 μ g. streptomycin per milliliter gave fertility increases of 3.1 per cent higher than did 500 μ g. of chloromycetin; (3) 500 μ g. streptomycin per milliliter gave fertility increases of 0.1 per cent higher than did 20 μ g. of terramycin.—[H. L. Easterbrooks: *Antibiotic Treatment of Diluted Bull Semen in Artificial Insemination. Fertility and Sterility*, 2, (May 1951): 430-443.]—H. L. EASTERBROOKS.

A Welcome for A New Journal

The JOURNAL desires to extend a welcoming hand to *The Journal of Small Animal Medicine* which launched its first issue in July, 1952. This handy, 45-page issue is nicely compiled with a pleasing, nonspectacular appearance and carries no advertising. The illustrations, a few artistic sketches, reflect the influence of the editor, Dr. Lawrence Groves, who has talent in that direction.

Dr. Groves is a 1938 graduate of the Ontario Veterinary College; he also has an M.S. degree. He served for several years in the Army Veterinary Corps, part of the time in Southern Asia and, since then, served for a time on the faculty of the College of Veterinary Medicine, Washington State College, at Pullman. May the new *Journal* and its editor meet with success and a long, fruitful life.

Influence of Ingestion of Various Solutions on Fasting Newborn Pigs

Within the limits of this experiment, ingestion of distilled water and physiological saline by fasting newborn pigs failed to prevent or delay development of critical hypoglycemia, although there was some evidence that it may have deterred dehydration, promoted renal excretion of nitrogenous wastes, and facilitated temperature regulation to some degree.

On the other hand, ingestion of glucose solution was effective in preventing critical hypoglycemia, hypothermia, and exhaustion of hepatic glycogen.—[C. C. Morrill and Jesse Sampson: *Studies on Baby Pig Mortality. XII. A Note on the Influence of Ingestion of Distilled Water, Physiological*

Saline, and Glucose Solutions on Fasting Newborn Pigs. Am. J. Vet. Res., 13, (July, 1952): 327-329.]

Inclusion Bodies and Diagnosis of Hog Cholera

Examination of histological sections of the urinary bladder, gall bladder, tonsil, liver, spleen, kidney, ureter, trachea, and spinal cord of 13 normal hogs, 40 cholera-infected hogs, and 17 hogs infected with other diseases revealed no inclusion bodies. Stained smears of gall bladder epithelium of cholera-infected hogs and those infected with other diseases when compared to those of normal hogs showed some marked differences. These differences between normal and diseased hogs were not specific for any one disease and therefore of no diagnostic value.—[Donald V. Benson: *The Value of Inclusion Bodies in the Diagnosis of Hog Cholera. Am. J. Vet. Res.*, 13, (July, 1952): 304-308.]

FOREIGN ABSTRACTS

Chronic Eosinophilic Myositis of Masticating Muscles in a Dog

A 2½-year-old female Great St. Bernard was found to have symmetrical atrophy of the masseter, temporal, and pterygoid muscles. Microscopically, there was extensive fibrosis and focal accumulation of mononuclear cells and eosinophils.

The symmetrical distribution in muscles innervated by the mandibular nerve suggests that the nervous system may play some role.—[Stian Erichsen: *Et tillfelle av kronisk eosinophil tyggemuskelbetennelse hos hund. (A Case of Chronic Eosinophilic Myositis of Masticating Muscles in a Dog. Nord. Vet.-med.*, 4, (Feb., 1952): 139-144.]—A.G.K.

Rickets in Horses

In horses, the serum calcium is 12.0 to 13.5 mg./100 cc. of blood and the inorganic phosphorus is 2.5 to 3.5 mg./100 cc. of blood. In rickets in horses, the phosphorus decreases while the calcium usually remains unchanged. The phosphatase for normal foals is up to 15 units, but for rachitic foals it may be 30 to 40 units.

Horses have a hereditary predisposition to rickets. Dark, damp, and cold stables provide an environment conducive to this condition and infection and parasitism may also contribute to it. The influence of the soil is of great importance, especially the phosphate control. Even in apparently good, sunny pastures, rachitis may become worse if the soil is deficient in phosphorus. Enlargement of the phalangeal points and straightening of the first phalangeal joint resulting in "club-foot" may result from rickets. The distal epiphyses of the metacarpus or the metatarsus may enlarge and

cause deformities. It is possible that ring-bone and spavin may be the result of rickets—[Eric Akerblom: *Rickets in Horses*. Nord. Vet.-med., 4, (May, 1952): 471-480.]—A.G.K.

Reliable Diagnosis of Fox Encephalitis

Typical inclusions may not always be found in liver or brain, especially if regressive changes are far advanced. It has been found that inclusions may be present in the endothelial cells of the endocardium and of the major vessels such as the aorta. It is recommended that smears be made from the endocardium and the intima of the aorta as well as from other organs when searching for inclusions for the diagnosis of fox encephalitis.—[Rolf R. Srenkerud: *Fox Encephalitis. II. A Method which Renders the Diagnosis at Autopsy Easier and More Reliable*. Nord. Vet.-med., 4, (Feb., 1952): 133-138.]—A.G.K.

Pasteurella Infection in Sheep

This is an account of the first known outbreak in Norway of *Pasteurella hemolytica* infection in sheep. The disease occurred usually in the spring months. In young animals, the infection was acute. Necropsy revealed extensive morbid changes in the pulmonary tract such as congestion, tracheitis, and consolidation. The spleens were enlarged and there was also focal hepatitis with areas of necrosis. The microorganism isolated from these cases had bacteriologic characters of *P. hemolytica* as described by other workers. A formalin-treated vaccine provided immunity in sheep and mice. The literature is reviewed.—[C. Woxholt, G. Naerland, and H. Hoff: *Pasteurellahemolytica infeksjon hos sau*. (Pasteurella hemolytica Infection in Sheep.) Nord. Vet.-med., 4, (May, 1952): 433-450.]—A.G.K.

Premunition Against Piroplasmiasis and Anaplasmosis of Young Breeding Bulls

An account is given of observations pertaining to the premunition against piroplasmiasis and anaplasmosis in a few young breeding bulls imported from the Netherlands to Surinam. The feeding and hygienic care is discussed. The essential premunition consisted of the subcutaneous injection of a few cubic centimeters of citrated blood of two latent infected Zebu calves. Five to seven days after the inoculation, the piroplasmiasis phase caused by *Babesia bigemina* began; whereas the anaplasmosis phase, caused by *Anaplasma marginale*, did not start until twenty-two to twenty-five days later. The complete premunition required about two and a half months. All animals made a complete recovery.

In the course of the premunition process, there developed a pustulous eczema about the anus, paronychia between the claws, trichophytosis, and a beginning mineral deficiency became apparent.

The author suggests that cattle imported from a moderate climate require daily observations.—[J. E. V. Langelier: *The Premunition Against Piroplasmiasis and Anaplasmosis of a Few Young Breeding Bulls Imported from the Netherlands*. Tijdschr. voor Diergeneesk., 77, (1952): 204-213.]—L.V.E.

Fowlpest in a Duck

Immediately after death, several ducks were subjected to a thorough bacteriologic examination, with negative results throughout. Parasites, as a possible cause of death, were not revealed. The autopsy showed petechia, a spotted heart, and some liver involvement. A filtrate was prepared of some of the organs and injected into 4 ducks. These birds did not sicken. About eighty-four days later, they were given another injection intramuscularly. They survived, but all of the controls died. During thirty years, the disease made its appearance only four times.—[J. Jansen, H. Kunst, and C. A. van Dorssen: *Another Case of Duckpest*. Tijdschr. voor Diergeneesk., 77, (1952): 220-223.]—L.V.E.

Plastic Surgery and Transplantation in Horses

The author describes various possibilities of plastic skin surgery and epidermis transplantation in veterinary surgery and reports a modified technique of Brown's skin transplantation. The transplant enhances interrupted epithelization at the border of the wound and retards excessive granulation. Transplantation is indicated with extended wounds, especially for third degree burns and scalds.—[K. Ammann: *Plastic Surgery and Transplantation in Horses*. Schweiz. Arch. f. Tierheilk., 94, (1952): 2.]—F. KRAL.

Cervical Prolapse of the Intervertebral Disc in a Dog

The author describes a case of prolapse of the intervertebral disc in a dog. Symptoms developed after the dog had been struck by a motor car. It showed evidence of distress after walking for some distance; its gait became unsteady and stiff, and its back was arched. The neurological examination revealed that the thoracolumbar vertebral column was kyphotic. There was a forced fixation of the head between the forelegs. At first, the dog showed signs of quadriplegia. Later, chocking of both optic discs developed. Because of the misleading intracranial symptoms, electro-encephalography was undertaken, although the calcified disc protrusion was plainly visible on the roentgenogram. The manifestations of the cervical prolapse are discussed on the basis of the postmortem findings.—[W. Kramer and J. D. Beijers: *Cervical Prolapse of the Intervertebral Disc in a Dog*. Tijdschr. voor Diergeneesk., 77, (May 1, 1952): 330-387.]—L.V.E.

Brucellosis in Cats

Cats were found susceptible to *Brucella abortus*, *Brucella suis*, and *Brucella melitensis*. The infection was produced by subcutaneous, intradermal, intravenous, conjunctival, and oral inoculation and by application to the injured skin. The disease was marked by periodic fever and progressive emaciation. There were 2 cases of abortion and 1 of arthritis in 43 cats. Agglutinins were present from the fourth to the eighteenth day after inoculation. *Brucella* was found in the bone marrow and in the parenchymatous organs.—[N. M. Nechayeva, Lwow Government Zootechnic Institute: *Susceptibility of Cats to Brucella abortus boris, Br. suis, and Br. melitensis*. *Veterinariya (Moscow)*, 29, (March, 1952): 30.]—R.E.H.

On Salmonella Infection in Chicks

For the first time *Salmonella bareilly* was observed in the Netherlands. The clinical picture corresponded to that observed in pullorum disease. The death rate among 1- to 14-day-old chicks ranged between 10 and 75 per cent. *Salmonella bareilly* was cultured from the organs, the intestinal contents, and the feces of the chicks. An investigation was made to discover the source of infection. Control measures are described. Good results were obtained by fumigation of the incubators with formaldehyde gas.—[A. Clarenburg and W. J. Roetke: *On Salmonella Infection in Chicks*. *Tijdschr. Diergeneesk.*, 77, (1952): 174-178.]—L.V.E.

An Insufficiently Explored Disease of Indonesian Horses

This disorder is manifested by a chronic fibro-rulent inflammation of the external part of the ear and the auditory conduit. In the course of this disease, the external ear tends to shrivel and curls downward or inward. Several species of microorganisms were cultivated from the affected areas. There were no indications of parasitic factors such as mites, fungi, or worm embryos. In all cases, the larvae of *Sarcophaga* and other insects were present. The myosis is probably of a secondary nature. Further investigations need to be undertaken.—[E. C. Kraneveld and Raden Djaenudin: *About an Insufficiently Explored Disease Among Horses in Timoa (Indonesian)*. *Memora Zoa*, 59, (Jan.-Feb. 1952): 54-60.]—L.V.E.

Grass Tetany in the Antwerp "Kempen"

With the purpose of studying the occurrence of grass tetany, the authors selected ten farms near Antwerp, the animals on six of which were affected with tetany every year, while on four others

there never had been a case of this disease. Blood samples were taken from all the cows of the ten farms, in September, November, February, and April. The potassium (K), calcium (Ca), sodium (Na), and magnesium (Mg) contents of the whole blood and serum were determined. At the time of the blood sampling, the rations were checked and a sample of every feed was taken to determine the contents of K, Ca, Na, and nitrogen (N). Soil samples of the pastures were analyzed for their content of soluble phosphates, exchangeable K, Na, Ca, Mg, N, and organic matter. The authors also studied the morphological composition of the blood of several animals showing symptoms of parturient paresis or grass tetany.

These observations led to the following conclusions: (1) Lymphopenia and eosinopenia were found regularly in most cases of parturient paresis but only occasionally in cases of grass tetany. This symptom is known to be caused by a hyperfunction of the adrenal cortex. The question remains as to whether or not this hyperfunction is the cause or the consequence of the illness. (2) The Ca and Na contents of the whole blood remained fairly constant. There was a seasonal change in the Mg and K contents. The Mg blood levels were lowest during winter and spring, while K blood levels were lowest in February and higher again in April. (3) In grass tetany the Ca and Mg contents of the whole blood and the serum decreased; K increased slightly. In parturient paresis, Ca decreased while Mg and K increased. (4) There was not a significant difference in the composition of the soils of the farms with and without grass tetany. There were marked fluctuations in the soil contents of exchangeable K, Na, Ca, N, and organic matter, low and high values being found in both groups. There was also fluctuation in the magnesium contents of the soils of farms without grass tetany and special soil composition could be observed. (5) On the farms with grass tetany, spring grass and hay contained more nitrogen than in the corresponding feeds on the farms without. There were no group differences in the Ca, Na, K, and Mg contents of the feeds used. (6) The winter rations used on the farms with grass tetany were very rich in protein and feed units. The proportion of protein to feed units was much higher in the rations on the farms with than on the farms without grass tetany.—[J. H. Bouckaert, W. Oyaert, J. Rossou, and D. A. Van Look: *Grass Tetany in the Antwerp "Kempen"*. *Vlaams Tijdschr. Diergeneesk.*, 20, (Dec., 1951): 261-280.]—L.V.E.

Heat Resistance of *Salmonella Choleraesuis* in Meat

Pieces of pork 4 to 8 cm. thick taken from swine infected with *Salmonella choleraesuis* and boiled for two and one-half hours were still capable of producing the infection when fed to white rats and pups. Bouillon and agar cultures of *S. choleraesuis* were heated at 70 C. for forty

minutes. Although no longer capable of growth on artificial mediums they remained pathogenic for laboratory rodents when injected subcutaneously. The endotoxin was not inactivated by heating at 100 C. for three hours.—[I. A. Artiukh and A. G. Ostashevski, *Ukrainian Inst. Exper. Vet. Med.: On the Question of the Sterilization of Meat Inoculated with S. choleraesuis. Veterinariya*, 29, (April, 1952): 37-42.]—R.E.H.

Diagnosis of Vibrio Fetus in Bulls

Bacteriological or serological tests for *Vibrio fetus* infection in bulls are not adequate. It was therefore planned to study the practicability of detecting infected bulls by inseminating virgin heifers with semen from suspect males and then examining the vaginal mucus for the presence of specific agglutinin. Fourteen bulls were used. The heifers were examined by the tampon method before and after insemination. Only 4 bulls did not transmit the infection to females. From the data, it was concluded that infected bulls could be detected by inseminating 6 to 10 virgin heifers which are then examined serologically by the tampon method on two occasions thirty and fifty days, respectively, after insemination.—[H. C. Adler, B. E. Albertsen, N. O. Rasbech, L. and Szabo, *Diagnosis of Vibrio Fetus Infection in Bulls by Experimental Transmission. Nord. Vet.-med.*, 4, (May, 1952): 462-470.]—A.G.K.

Typing of Tuberculosis in Cattle

Specimens from 2,286 animals were examined for tubercle bacilli by culture and guinea pig inoculation during the period from 1940 to 1950. Thirty-three per cent were negative. Bovine tubercle bacilli were found in 52 per cent, avian strains in 14 per cent. The human type was present in eight specimens. In several instances, both avian and bovine strains were demonstrable in material from the same animal. The data are presented in seven tables showing the results from examination of various lymph nodes and organs.—[H. Plum, *On Typing of Tuberculosis in Cattle in Denmark. Nord. Vet.-med.*, 4, (May, 1952): 451-461.]—A.G.K.

BOOKS AND REPORTS

Turkey Diseases

This manual contains a detailed description of the various turkey diseases, together with methods for their prevention. The subject matter includes protozoan, bacterial, viral, fungus, non-infectious, and parasitic diseases. The manual was prepared largely for lay consumption, although the veterinary practitioner may find it useful. It is well illustrated to supplement the text and has a well-organized table of contents

and index. In the hands of turkey growers and veterinarians, this manual should serve a useful purpose in combating turkey diseases.—[*Turkey Diseases: By W. R. Hinshaw and A. S. Rosenwald. Manual 3. California Agricultural Experiment Station and Extension Service, Berkeley.* 110 pages. Hard cover. Price not given.]

The Shepherd's Guide to Sheep Diseases

While the author states in his preface that "The Shepherd's Guide" is primarily intended for the sheep producer, this book should be interesting and valuable to any veterinarian who is concerned with the diseases of sheep. The book was prepared for the use of British sheepmen and does not attempt to cover the diseases which are not found in Britain, but it covers quite completely the diseases of that country. Most of those diseases are common to the various sheep-producing areas of the world.

The first section of the book gives a brief discussion of the principles of antiseptics, disinfection of premises, and the use of vaccines and serums. This is followed by sections on bacterial diseases, virus diseases, rickettsial diseases, functional disorders, diseases of unknown origin, ectoparasites, and worm parasites. Each of the infectious diseases is discussed under the headings of cause, conditions of occurrence, symptoms, postmortem findings, diagnosis, prevention, and treatment. In general, preventive measures are emphasized, and no attempt is made to give details of treatment. In the discussion of parasitic disease, the life histories of the parasites are discussed quite fully and correlated with methods of prevention and control.

The style of writing and the manner of approach to the subject are clear and not highly technical, but the reader is not conscious of any attempt to write for an audience not trained in animal pathology.—[*The Shepherd's Guide to the Prevention and Control of the Diseases of the Sheep: By J. Russell Greig, 108 pages. His Majesty's Stationery Office, Edinburgh. Price 3 s.*]—HAD-LEIGH MARSH.

The Origin of Life and the Evolution of Living Things

This entire volume is "an environmental theory." It departs from current teachings that fortuitous mutation is the fundamental mechanism of evolution.

An attempt is made to explain the origin and evolution of living things on a physico-chemical basis and as expressions of the operation of natural law. Consideration is given to origin with the view that this is mandatory to an understanding of the basic principles of evolution. Certain key principles that are felt to govern organic evolution are suggested for the first time. Application of one of these principles provides a formal explanation for the male and female ele-

ments, for fertilization, and for bizarre and heretofore unexplained events that accompany maturation of sperm and eggs.

This theory may throw new light on the nature of biological disorder, human behavior, and on the cause and development of cultures.—[*The Origin of Life and Evolution of Living Things*. By Olan R. Hyndman, M.D., F.A.C.S. 648 pages. Philosophical Library, 15 E. 40th Street, New York, N. Y. Price not given.]—C. R. DONHAM.

Men, Meat, and Miracles

An intriguing story of the early methods used in the butchering of cattle in Chicago, and in the developments which led to the present magnificent slaughtering and processing plants serviced by the Chicago Union Stock Yards, is told in this book.

Equally, or even more interesting, is the story of how the stalwarts from the womenless plains and prairies, ranches and range, converged upon the market, bringing with them their untamed cattle, also their fixed individual traditions and human values by which they lived, and that the breaker of these traditions became the maverick—the pariah.

The story relates how the qualities and doctrines of these cowmen became implanted in the business practices, procedures, and conduct of the men of the "yards." And how the two groups were drawn together at times by imponderable hazards of drought and flood, disease and pests, affecting producer and packer alike. To read the author's description of the good and evil situations which alternately charmed and plagued the stockyard district should make the saint rejoice and the virile wonder if he had not missed something.

Mr. Fowler gives basic reasons for the existence of free American enterprise and relates how it comes under the concentrated fire of reactionaries and muckrakers, playing up the weak points and never admitting its stronger points; how every industrialist is their villain and every socialist leader their hero; and that they are committed to turn America back from its progress in free enterprise towards the nirvana of socialism. This chapter should set the jaw of every good American and impel him to work at the job as such.

The author also deals factually and at length with meat inspection, animal disease control, and other subjects that are, by their nature, tied in with the meat packing industry.—[*Men, Meat, and Miracles*. By Bertram B. Fowler. Julian Messner, Inc., New York, N. Y. 1952. 245 pages. Price \$3.00.]—J. A. BARGER.

The Brenon Chinchilla Service Handbook

This notebook is intended to detail practical facts for chinchilla ranchers. It discusses feeding, breeding, and genetics of chinchillas and also their anatomy, physiology, pathology, diseases, and treatment. It is pretty heavy reading for breeders and

is too commercially slanted to be considered as an acceptable text by veterinarians.—[*The Brenon Service Handbook*. By Herbert C. Brenon. 126 pages. Loose-leaf binding. Murray and Gee, Inc., Culver City, Calif. Price not given.]

REVIEWS OF VETERINARY MEDICAL FILMS

Livestock Pest Control.—Sound, 16-mm., color; running time about twenty minutes. Produced by and available from the California Spray Chemical Co., Richmond, Calif. This film deftly manages to include some beautiful rural scenes with some realistic, less savory conditions.

Illustrating the story of many external parasites of farm animals, it tells the economic importance of each. Veterinarians will find it an interesting presentation of the modern methods of controlling such parasites as the heel fly (warbles), scabies, and other mites, ticks, screw worms, flies, and other pests.

The final five minutes is information about the products which the company produces for the control of pests.

Epidemiology of Brucellosis.—Sound, color, 35 mm., strip film; running time about fifteen minutes; comes with large record. Produced by the Communicable Disease Center of the U. S. Public Health Service, Atlanta, Ga.; available from the AVMA Film Library, 600 S. Michigan Ave., Chicago 5, Ill., and the C.D.C., U.S.P.H.S., Atlanta, Ga. The handling charge if requested from the AVMA is \$1.00.

As suggested by the title, this is an excellent presentation of the epidemiology of brucellosis. It explains, in introducing the subject, that there are three types of the disease and the species that are susceptible to each.

There is also a more complete discussion of the disease, its distribution, incidence, how it spreads, its symptoms, and lesions in cattle, hogs, goats, and man. This section could have been substantially improved by a depiction of the diagnostic procedures employed. Special reference is made to how human beings become infected and the special dangers to veterinarians, packing-house workers, farmers, and laboratory workers. Finally, the film stresses that there are no consistent "cures" for the disease in man or animals and therefore the emphasis must be placed upon prevention.

This strip film will be interesting and worthwhile for showing to students in schools of veterinary medicine, medicine, and public health. It will also be valuable for showing to groups of interested laymen including livestock producers. The latter will undoubtedly desire more information about the disease in animals. The film could serve well for introducing the subject to livestock producers.

THE NEWS

Wildlife Disease Association Formed

At its 1951 annual meeting, the North American Wildlife Conference discussed the need for group consideration of wildlife disease problems and decided to form such a group made up of individuals especially qualified in that field of investigation. As a result, the organization of the Wildlife Disease Association took place during the North American Wildlife Conference in Miami in March, 1952, and a statement of scope and purpose for the new association was approved.

The interest of veterinarians experienced in working with diseases of wild and furbearing animals and zoological park animals, is sought by the Wildlife Disease Association. No doubt a number of veterinarians in the fields indicated, as well as veterinarians in public health work who are concerned with diseases of wildlife transmissible to domestic animals and man, will want to take part in the activities of the association. The following statement has been furnished for publication by Dr. Carlton M. Herman, Patuxent Research Refuge, Laurel, Md., chairman of the committee which was instrumental in forming the new organization.

Statement of Scope and Purpose of the Wildlife Disease Association

The practice of wildlife management in North America has attained the status of a recognized profession. As professions go, it is a youthful one, but the responsibilities with which it is charged are heavy. It is asked to manage desirable populations of wildlife species so that they may be at least maintained, and in many instances increased beyond their current numbers. On the other hand, the profession is charged with the control of nuisance species whose populations are believed to conflict so extensively with human health and economy or with the welfare of more desirable species of wildlife, that their reduction appears warranted.

Much more knowledge than is currently available is required for judicious handling of many of the problems incident to managing wildlife populations. There are natural limitations to the abundance of all species, limitations which are affected by climate, food, and natural enemies.

Among the natural enemies, diseases are of great importance in affecting wildlife populations. This phase of wildlife research needs more attention and coordination than it has received heretofore. The identification, epidemiology, and significance of diseases are subjects of investigation by private, state, and federal agencies. Some of these agencies are primarily concerned with wildlife diseases as they bear on public health, others as they may affect animal industry. State and federal conservation agencies are often primarily concerned in disease factors limiting wildlife resources. The importance of some of the disease agents to the public health, the livestock industry, and the populations of wild animals has already been demonstrated. A closer working relationship is needed between all of the investigators whose work is contingent on wildlife disease problems. The Wildlife Disease Association has been formed to achieve this coordination between fields, including population dynamics, nutrition

and nutritional diseases, animal pathology, bacteriology, virology, parasitology, immunology, toxicology, therapeutics, and related subjects.

The Association should eventually consider ways and means of effectively advising on the organization of wildlife disease studies in areas not adequately serviced for this type of work and to provide information on the kind of assistance now available from diagnostic laboratories.

It is the intention of the Association to establish a newsletter or some other form of communication for disseminating matters of interest to members of the Association and other interested agencies or persons.

Scope and purpose of the Association shall be to:

- 1) Compile a directory of workers and their specialties in this field.
- 2) Channel pertinent information on current studies and developments to members of the group.
- 3) Provide a means for dissemination of information to organizations concerned with wildlife management, public health, and animal health.
- 4) Provide opportunities for discussion of mutual problems through an annual meeting held in conjunction with the North American Wildlife Conference.

It is expected that the Wildlife Disease Association will hold a one-day meeting during the Eighteenth Annual North American Wildlife Conference to be held in Washington, D.C., March 9-11, 1953. Anyone interested in affiliating with the association should write to Dr. Carlton M. Herman, Patuxent Research Refuge, Laurel, Md. The other members of the committee are: J. F. Bell, Ph.D., National Institutes of Health; W. B. Bell, D.V.M., Virginia Polytechnic Institute; E. L. Cheatum, Ph.D., Southern Methodist University; I. McT. Cowan, Ph.D., University of British Columbia; W. L. Jellison, Ph.D., U.S. Public Health Service; N. D. Levine, Ph.D., University of Illinois, and M. N. Rosen. The field of veterinary medicine is represented by Dr. W. B. Bell, professor of biology, Virginia Polytechnic Institute, and Dr. N. D. Levine, associate professor of veterinary parasitology, University of Illinois.

New Associate Editors Appointed

After consultation with the editorial staff, President W. L. Boyd appointed the following associate editors for the JOURNAL of the AVMA:

Drs. F. E. Hull, Lexington, Ky. (diseases of horses); Harry W. Johnson, 5000 S. Santa Fe St., Littleton, Colo. (diseases of beef cattle); S. J. Roberts, Cornell University (diseases of dairy cattle); J. D. Ray, White Hall, Ill. (diseases of swine); Hadleigh Marsh, Bozeman, Mont. (diseases of sheep and goats); Ezekiel F. Thomas, 4644 Main St., Jacksonville, Fla. (diseases of poultry); K. W. Smith, Sioux City, Iowa (diseases of small animals); L. E. Fisher, Berwyn, Ill. (diseases of wildlife and captive animals); Ray Fagan, Kansas City, Kan.

(public health); Brigadier General J. A. McCallam, Washington, D. C. (Army Veterinary Corps); Colonel W. O. Kester, Washington, D. C. (Air Force Veterinary Corps); Dr. M. S. Shahan, Washington, D. C. (U. S. Department of Agriculture).

Each associate editor represents one field of endeavor or one species or group of animals. In addition to being consulted concerning certain manuscripts submitted for publication, they will advise the editor on current developments in their phase of veterinary medicine.

Direct Mail Campaign for AVMA Research Fund Launched

The Research Fund Raising Committee met with its chairman, Dr. W. G. Brock, of Dallas, Texas, on Aug. 10, 1952, in Chicago and approved the first letter in a series of four to be sent to the veterinarians in this country, its possessions, and Canada in an appeal for funds to continue the research fellowship project now in its tenth year. This first letter was mailed Aug. 15, 1952.

The official campaign was "kicked-off" by Dr. A. H. Quin at the opening session of the AVMA's annual meeting in Atlantic City last June. Veterinarians and others attending the meeting contributed \$5,000 on the spot to help the campaign get started. It is felt that the goal of \$100,000 can be reached if veterinarians would contribute an average of \$10 to the Fund.

A booklet entitled "They All Have a Stake" was enclosed with the August 15 letter. It tells the story of the animal disease research program for which the money is needed—how it works, part of what it has already accomplished, some of the problems it faces, and how each veterinarian can personally help. Additional copies are available from the AVMA office in Chicago.

Reprints of the report by Dr. M. A. Emmerston, "Ten Years of Progress by the Research Council," which appeared in the June issue of the JOURNAL, may be obtained also from the Association's headquarters.

Contributions may be mailed direct to the AVMA, 600 South Michigan Avenue, Chicago 5, Ill., and are deductible for income tax purposes. All checks should be made payable to the AVMA Research Fund.

The American College of Veterinary Pathologists will hold an examination for certification in the specialty of veterinary pathology at Chicago, Ill., Nov. 28, 1952. Application forms can be obtained from Dr. W.T.S. Thorp, National Institutes of Health, Bethesda, Md. These must be returned by Oct. 10, 1952.

WOMEN'S AUXILIARY

Facts About the Women's Auxiliary to the AVMA.—The history of the Women's Auxiliary to the AVMA states that "It was organized in 1917, with approximately 50 women at the organizational luncheon. When the Auxiliary came into existence, it was the fulfillment of a desire to help others of the profession and their families. Methods of achieving this desire have taken various forms, but the primary purpose of the Auxiliary has been, and still is, service to the veterinary profession. Having proved that it seeks to serve, and not to usurp, the Auxiliary today is an honored and respected helpmate to the American Veterinary Medical Association."

The first loan made to a veterinary student was in 1922 and, since then, many students have been given timely and much needed aid by the Auxiliary. During the war years, and for a few years afterward, the loan fund was not so active. The G.I. Bill of Rights and D.V.A. (Canadian) helped to the extent that loans were not so necessary. Last year, however, the fund was very active. Twelve students were granted loans totaling \$4,800. They were all senior students as the requirements dictate. Each student who received a loan was recommended by his dean, and all other requirements were fulfilled.

It is not possible to give further details here but the executive board is satisfied that in every case the loans were needed, and that a serious change in the students' plans for the future would have been necessary had they not been available.

At the Milwaukee meeting in 1951, it was voted to raise the maximum loan from \$200 to \$400 because of the increased cost of living. We are grateful to the auxiliaries and organizations that have sent in contributions to the loan fund. We hope to have these listed and acknowledged in a later issue. As one can readily see, all donations toward this worthy objective will serve to prevent something that none of us want to have happen—not being able to help because of lack of funds.

Last year, the Auxiliary gave awards to a senior student in each of the 17 accredited colleges of veterinary medicine. These awards (\$25 in cash and a certificate suitable for framing) are given to a senior student who has made some contribution which helps raise the standing of his college on the campus. These efforts were many and varied, but in each case they were outstanding. A quotation from a letter received from one of the recipients last spring will, I think, serve as a striking example of their appreciation of this important project.

"The certificate will be framed and hung in my office next to my sheepskin and license to

practice veterinary medicine. The check will be spent for an instrument which I shall have engraved for remembrance.

"I feel this to be the highest honor that I have ever received, and I will try to live up to it by always keeping my ideals as high as I regard my award, and my thinking as clean as the spirit in which it was given. From these phrases I hope you can gather my feelings. I can only say from my heart, 'I thank you'".

One of our new projects is to cooperate with the Research Fund Raising Committee of the AVMA. The affiliated auxiliaries are being called upon to help with this worthy project. Last year, through donations from auxiliaries and individuals, we raised over \$500 for the fund. If we all get together and work, as women's organizations can work, our concerted efforts will have a tremendous effect on the amount collected.

We hope you will watch the JOURNAL each month for further information about our AVMA Auxiliary and its projects.

All the women's auxiliaries—local and regional—give us who are connected with this great profession as wives, mothers, and sisters, an opportunity to show our interest in a concrete way. Our AVMA Auxiliary, with its tremendous geographical scope, covering as it does all of North America, goes even further in that it gives the women of the North American countries an opportunity to share common problems and interests. Above all, it gives us an opportunity to be friendly toward each other. In this restless world, with its wars, cold and otherwise, we have a golden opportunity to prove what can be done for good, both in public relations and in international relations.

In closing, may I remind you that . . .

No invitation is necessary to become a member of the Women's Auxiliary to the AVMA. We welcome all interested women. The dues are only \$1.00 per year. Just write to:
Mrs. C. M. Rodgers, Secretary, Blandinsville, Ill.

s/(Mrs. H. S.) HAZEL MACDONALD, *President*.

• • •
Pacific North-West Auxiliary.—At the July 7-9 meeting of the Pacific North-West Veterinary Medical Association, members of the Women's Auxiliary enjoyed a get-acquainted party, the annual luncheon, a coffee party and shopping tour, and a play. Mrs. J. Folinsbee, Mrs. E. Sproston, and Mrs. I. Moynihan comprised the women's committee.

• • •
Wisconsin Auxiliary.—The summer meeting of the Women's Auxiliary to the Wisconsin Veterinary Medical Association was held in Madison on July 22-23. At the business meet-

ing, presided over by President Mrs. Claude Reading, the auxiliary voted to make a contribution to the AVMA Research fund. Eleven new members joined the auxiliary, and the following were guests at the social activities: Mrs. Jessie Sampson, Urbana, Ill.; Mrs. P. T. Engard, Marysville, Ohio; Mrs. W. A. Aitken, Chicago; and Mrs. Guy Graham, Kansas City, Mo.

On the social calendar were a luncheon, a banquet, a tea given at the home of Mrs. Reading, and a tour of Babcock Hall, new dairy building at the University of Wisconsin. At the annual luncheon, Mrs. E. A. Woelfler of Oconomowoc reported on the meeting of the national Auxiliary in Atlantic City.

s/(Mrs. D. K.) BETTY SORENSEN, *Secretary*.

APPLICATIONS

Applicants — Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 16, 1951, in Milwaukee, Wis., the names of applicants residing within the jurisdictional limits of the constituent association shall be published once in the JOURNAL.

The following applicants have been certified as members of the constituent association that has jurisdiction over the area in which the applicant resides. This certification was made by the secretary of the constituent association in accordance with Section 2, Article X, of the Administrative By-Laws.

AHRENS, ROBERT H.

Jewell, Iowa.

D.V.M., Iowa State College, 1950.

BOHAN, C. L.

Box 391, Madelia, Minn.

D.V.M., Iowa State College, 1930.

CONRAD, HARRY J.

8474 Melrose Ave., Los Angeles, Calif.

D.V.M., Kansas State College, 1939.

JASPER, ELBERT B.

168 N. Lancaster, Athens, Ohio.

D.V.M., Ohio State University, 1949.

KAHL, PAUL L.

Stamford, N. Y.

D.V.M., Cornell University, 1940.

NEBEKER, IRVINE L.

1003 Elm Ave., Salt Lake City, Utah.

D.V.M., Colorado A. & M. College, 1920.

PETERMAN, JOHN B.

Box 226A, R.D. 1, Pottstown, Pa.

V.M.D., University of Pennsylvania, 1945.

SEGUIN, J. L.

Plantagenet, Ont.

D.V.M., Ontario Veterinary College, 1947.

TETZLAFF, ROGER D.

Morrisonville, Wis.

D.V.M., Iowa State College, 1952.

WATERBURY, LAFE J.

646 N. Central Ave., Richland Center, Wis.

D.V.M., Ontario Veterinary College, 1950.

- WATERS, WILLIAM J., JR.
P. O. Box 926, Hendersonville Veterinary Hospital, Hendersonville, N. Car.
D.V.M., University of Georgia, 1951.
- WOARD, GEORGE T.
Box 232, BAI, Kerrville, Texas.
D.V.M., Texas A. & M. College, 1947.
- YOUNIE, ALEX R.
R.R. 1, St. Catharines, Ont.
V.S., Ontario Veterinary College, 1914.

Applicants — Not Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., notice of all applications from applicants residing outside of the jurisdictional limits of the constituent associations, and members of the Armed Forces, shall be published in the JOURNAL for two successive months. The first notice shall give the applicant's full name, school, and year of graduation, post office address, and the names of his endorsers.

First Listing

- ECHENAGUSIA, HUGO
441 N. Lake St., Madison, Wis.
Veterinary School Montevideo, 1951.
Vouchers: G. P. Lockhart and R. E. Nickols.
- PARHAM, WILLIAM M., JR.
Rt. 2, Box 292 F, Portsmouth, Va.
D.V.M., Tuskegee Institute, 1951.
Vouchers: M. A. Nelson and G. W. Cooper.

Second Listing

- ELLIS, HARVIE R., 412 Dickman Rd., Fort Sam Houston, Texas.
- LINDLEY, RIES R., Vallarta No. 1, Apartado Postal No. 751, Mexico, D. F.
- PATE, WALTER E., 4540 Flora Ave., St. Louis 10, Mo.

1952 Graduate Applicants

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of student chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

First Listing

University of California*

- HILL, HARRY H., D.V.M.
P. O. Box 791, 44 McNeill St., Encinitas, Calif.
Vouchers: L. V. Hastings and R. S. Rey.

Colorado A. & M. College

- ZIRIAX, ROBERT L., JR., D.V.M.
Box 517, Williams, Ariz.
Vouchers: J. Farquharson and L. K. Wayt.

Iowa State College

- BRICKER, JOHN J., D.V.M.
Greenfield, Iowa.
Vouchers: T. F. Bartley and C. J. Daugherty.
- CHACE, WALTER R., JR., D.V.M.
Pilger, Neb.
Vouchers: E. A. Benbrook and D. L. Baker.
- GOOCH, MARSHALL H., D.V.M.
2704 Lincolnwood Dr., Evanston, Ill.
Vouchers: L. E. Fisher and R. C. Glover.
- ROBINSON, EVERETT L., JR., D.V.M.
R.F.D. 2, Lee's Summit, Mo.
Vouchers: F. K. Ramsey and O. W. Whitcomb.
- SCHOLTEN, ROBERT, D.V.M.
Box 336, Sanborn, Iowa.
Vouchers: D. W. Poppen and C. A. De Valois.
- STROHEHN, ARTHUR M., D.V.M.
590 N. 20th, Salem, Ore.
Vouchers: M. A. Emmerson and E. A. Hewitt.

University of Illinois*

- FINK, RICHARD B., D.V.M.
504 Requiza Rd., Encinitas, Calif.
Vouchers: R. B. Horland and J. S. Winston.

Michigan State College

- FARRIS, HARRY B., D.V.M.
1000 S. Euclid, Bay City, Mich.
Vouchers: B. V. Alfredson and R. A. Rannels.
- JONES, ROBERT OWEN, D.V.M.
3927 Fort St., Lincoln Park, Mich.
Vouchers: E. R. Zingiser, D. J. Francisco.
- SCHWABE, OTTO, D.V.M.
90-34 Francis Lewis Blvd., Queens Village, N. Y.
Vouchers: C. F. Clark and E. K. Sales.

University of Pennsylvania

- AWKERMAN, LOY C., V.M.D.
150 S. Main St., Manheim, Pa.
Vouchers: J. W. Bender and W. B. Bixler.
- BOWEN, NELSON D., V.M.D.
1 High St., Montrose, Pa.
Vouchers: R. C. Snyder and C. J. Hollister.
- DOLINGER, SOL, V.M.D.
49-12 Queens Blvd., Woodside, N. Y.
Vouchers: R. C. Snyder and L. Vine.
- FRIDRICK, DAVID G., V.M.D.
6117 W. Main St., Fogelsville, Pa.
Vouchers: R. C. Snyder and E. G. Kipp.
- GUENTHER, FREDERICK R., V.M.D.
614 Bloom St., Danville, Pa.
Vouchers: R. C. Snyder and J. H. Mark.
- NILSSON, LAURS S., JR., V.M.D.
Milk St., Box 13, Branchville, N. J.
Vouchers: R. C. Snyder and D. G. Lee.

Correction.—Due to a new employee processing the applications of students for membership in the AVMA, the signature of Dean W. A. Hagan as one of the vouchers on two applications from the New York State Veterinary College was published as "W. M. Sagan." The applicants were Daniel Duberman and Edward T. Greenstein (Sept., 1952, JOURNAL).

WIDMANN, RAYMOND J., V.M.D.
3934 Spruce St., Philadelphia 4, Pa.
Vouchers: I. Mitterling and H. A. Suter.

Texas A. & M. College

ELSTON, DAVID M., D.V.M.
Box 206, Gonzales, La.
Vouchers: M. H. Gaudy and C. W. Hefflin.
MARTIN, D. B., Jr., D.V.M.
Box 2443, Longview, Texas.
Vouchers: J. L. Clayton and J. T. Dawson.
TILLERY, JOE B., Jr., D.V.M.
5619 Yale St., Dallas, Texas.
Vouchers: F. P. Jaggi, Jr., and A. A. Lenert.

Washington State College

BECKMANN, HAROLD E., D.V.M.
2501 N. Normandie St., Spokane, Wash.
Vouchers: R. E. Watts and P. A. Klavano.
IRWIN, ADDISON L., D.V.M.
310 Taft Hwy., Bakersfield, Calif.
Vouchers: L. F. Ackerman and B. C. Watson.
KELLER, FRED W., D.V.M.
Box 704, Redmond, Wash.
Vouchers: R. E. Watts and R. L. Ott.
MARUGG, GEORGE M., D.V.M.
2632 6th St., Apt. 2, Tillamook, Ore.
Vouchers: A. D. Lloyd and D. H. Helfer.
PAZARUSKI, JAMES P., D.V.M.
210-7th Ave., Anchorage, Alaska.
Vouchers: C. G. Mason and R. Rausch.
REDISKE, RAYMOND R., D.V.M.
321 Wellington Ave., Walla Walla, Wash.
Vouchers: J. R. Fuller, Jr., and E. W. Young.
RHODEFER, ERNEST T., D.V.M.
9825 N. E. 1st, Bellevue, Wash.
Vouchers: F. W. Duey and M. D. Nicholls.
SCHMUTZ, MILTON D., D.V.M.
910 N. Pierce, Opportunity, Wash.
Vouchers: G. D. Hopkins and R. F. Canfield.
STORMS, LESTER "C", D.V.M.
4310 S.W. Primrose, Portland 19, Ore.
Vouchers: V. T. Oliver and T. H. Reed.
THOMPSON, LEONARD A., D.V.M.
c/o Kerrisdale Veterinary Hospital,
Vancouver, B. C.
Vouchers: R. E. Watts and P. A. Klavano.
VANDERBORT, GLEN R., D.V.M.
Box 212, Oakville, Wash.
Vouchers: P. A. Klavano and R. E. Watts.
VIRGIN, JOSEPH O., D.V.M.
5025-25th, N.E., Seattle 5, Wash.
Vouchers: R. E. Watts and R. L. Ott.
WRIGHT, HOWARD L., D.V.M.
3716 N. 13th, Tacoma, Wash.
Vouchers: B. R. Pinckney and C. T. Pecken-
pugh.

Second Listing

University of California

INGRAHAM, RODNEY H., D.V.M., Rt. 2, Box 422A,
Merced, Calif.

Colorado A. & M. College

BEECHER, EDWARD F., Jr., D.V.M., 1409 Grady
Ave., Charlottesville, Va.

KINGHOEN, FERRIN "B", D.V.M., 695 E. Prospect
St., Fort Collins, Colo.
SOBULE, MARVIN L., D.V.M., 5600 Auburn Rd.,
Apt. B, Jacksonville, Fla.
STEVENSON, AUGUST H., D.V.M., 1040 S.W. 3rd
Ave., Apt. 2, Ontario, Ore.

University of Illinois

BAKER, JOHN ROBERT, D.V.M., 405 N. Main St.,
Mt. Carroll, Ill.
CAMPBELL, KENNETH D., D.V.M., 105 W. Vine
St., Champaign, Ill.
MURPHY, EDWARD C., D.V.M., 701½ Pulaski,
Lincoln, Ill.
SPECHT, WILLIAM K., D.V.M., 515 Oakland Ave.,
Morrison, Ill.

Iowa State College

BARCOCK, JOHN A., D.V.M., Goodhue, Minn.
BEVINS, NOEL F., D.V.M., 4841 Hull St., Skokie,
Ill.
BURCH, LOUIS L., D.V.M., Logan, Iowa.
BURGER, AUGUST F., Jr., D.V.M., Alta, Iowa.
CAVANAUGH, LEONARD, D.V.M., Anthon, Iowa.
CHAPIN, NEAL E., D.V.M., Lena, Ill.
CLARK, MARVIN ELSTON, D.V.M., 1024 E. Broad-
way, Monmouth, Ill.
CRANE, MELVIN R., D.V.M., General Delivery,
Elk Horn, Iowa.
FRITZ, DONALD L., D.V.M., 115 N. Washington,
Platteville, Wis.
GULDNER, JOHN S., D.V.M., 1106 Sycamore St.,
Waterloo, Iowa.
HESSE, NORMAN H., D.V.M., LuVerne, Iowa.
JERMIER, JAMES A., D.V.M., 110 E. 20th St.,
Cedar Falls, Iowa.
KNOSBY, AUSTIN T., D.V.M., Elma, Iowa.
KUNKLE, HARRY W., D.V.M., Stratford, Iowa.
MCANDREW, PAUL J., D.V.M., Charlotte, Iowa.
MAU, JACK A., D.V.M., 26 Second St., N. W.,
Le Mars, Iowa.
MISKIMINS, RADEAN S., D.V.M., Box 6, Kimball,
S. Dak.
O'BRIEN, WILLIAM J., D.V.M., Box 256, Ryan,
Iowa.
OLSON, WILLIAM H., D.V.M., Norwood, Minn.
STAMV, RICHARD O., D.V.M., Norway, Iowa.
THORPE, DARYL K., D.V.M., 202 Dakota Ave., S.,
Huron, S. Dak.
VEACH, ROBERT L., D.V.M., 310 2nd St., Webster
City, Iowa.
VOETBERG, ROBERT R., D.V.M., 202 1st Ave., S.,
Mount Vernon, Iowa.
WRIGHT, BURMAN L., D.V.M., Shelby, Iowa.

Michigan State College

ANDERSON, PALMER BYRON, D.V.M., 33 S. 4th St.,
Platteville, Wis.
BLAKE, JOSEPH JEROME, D.V.M., 1902 N. Elm Rd.,
R.F.D. 2, Jackson, Mich.
GREUBEL, ALVIN G., D.V.M., 907 E. 3rd St.,
Fowler, Ind.
HAELTERMAN, EDWARD O., D.V.M., 9 W. State
St., West Lafayette, Ind.
HUSSEY, EUGENE R., D.V.M., Kezar Falls, Maine.

Oklahoma A. & M. College*

BURNETT, WILLIAM C., D.V.M., c/o State Veterinarian State Capitol, Salem, Ore.

University of Pennsylvania

CAMERON, JOHN S., V.M.D., Apt. 63, Red Bank Manor, Harding Rd., Red Bank, N. J.

CLACK, FRANK B., V.M.D., 319 N. Buhl Farm Dr., Sharon, Pa.

COOGAN, ARTHUR P., V.M.D., 201 Pennsylvania Ave., Claymont, Del.

DERRY, LYNN R., V.M.D., 197 Elmendorf St., Kingston, N. Y.

HAWS, G. ALLEN, V.M.D., 29 N. 5th Ave., Clarion, Pa.

HAWS, NATALIE CASE, V.M.D., 29 N. 5th Ave., Clarion, Pa.

LONGORIA, VICTOR M., V.M.D., 4322 Walnut St., Philadelphia 4, Pa.

MOON, CALVIN, V.M.D., 2222 S. Broad St., Trenton 10, N. J.

NEWMAN, EDWARD PETER, JR., V.M.D., 809 Chambers Ave., Gloucester, N. J.

NEWMAN, JAMES M., V.M.D., Rt. 1, Box 1-A, Opportunity Heights, Wytheville, Va.

PATT, JOHN F., V.M.D., R.D. 2, Mohnton, Pa.

QUATROCHE, JOHN E., V.M.D., 384 Chestnut St., St. Mary's, Pa.

RUDE, THEODORE A., JR., V.M.D., Box 306, Skiatook, Okla.

SAUER, ROBERT M., V.M.D., 317 Princeton Rd., Barrington Manor, Barrington, N. J.

SCHWARTZMAN, ROBERT M., V.M.D., 360 Dixwell Ave., New Haven, Conn.

STOYAK, JOSEPH M., V.M.D., 528 North St., Throop 12, Pa.

WERNER, JOHN R., V.M.D., Lauxmont Farms, Wrightsville, Pa.

WILKINS, JOHN L., V.M.D., R.D. 4, Muncy, Pa.

Texas A. & M. College

SWOPE, BILLY J., D.V.M., Box 409, 1414 N. Jefferson, Mt. Pleasant, Texas.

Washington State College

BROWN, JOHN J., D.V.M., 3745 Harrison Ave., Butte, Mont.

CARLSON, ROBERT L., D.V.M., General Delivery, Sequim, Wash.

ELEFSON, ERLAND P., D.V.M., Rt. 1, East Stanwood, Wash.

FRIER, PHILIP A., D.V.M., 1841 Oak Bay Ave., Victoria, B. C.

GRIM, ALFRED C., D.V.M., 39 N. Main Lane, Lodi, Calif.

HARRIS, HENRY C., D.V.M., 533 W. Daisy Ave., Lodi, Calif.

HATCHER, MALCOLM G., D.V.M., 406 N. Hoover St., Whittier, Calif.

HUBBELL, BECKWITH, JR., D.V.M., Bozeman Animal Hospital, Bozeman, Mont.

KURTZ, THOMAS R., D.V.M., 13851 21st Ave., S., Seattle 88, Wash.

MIGAKI, GEORGE, D.V.M., 310 Burlington Ave., Missoula, Mont.

MILLER, VERNON JACK, D.V.M., Box 42, Chewelah, Wash.

ROSECRANS, CHARLES C., D.V.M., 2535 Vine Ave., Klamath Falls, Ore.

SMITH, GEORGE DALE, D.V.M., Box 14, Carnation, Wash.

STAGGS, GEORGE W., D.V.M., Rt. 12, Box 14, Tacoma, Wash.

STOCKER, STANDLEY R., D.V.M., Rt. 3, Snohomish, Wash.

TOOLE, ROY C., D.V.M., 815 Rainier Ave., Seattle 44, Wash.

WESEN, PAUL A., D.V.M., Rt. 1, Snohomish, Wash.

U. S. GOVERNMENT

Veterinary Personnel Changes.—The following changes in the force of veterinarians in the U. S. Bureau of Animal Industry are reported as of Aug. 8, 1952.

NEW APPOINTMENTS

William R. Browne, Los Angeles, Calif.

Miss Lois E. Hinson, Peoria, Ill.

Dennis R. Hranitzky, Olympia, Wash.

Lawrence M. Joran, New York, N. Y.

John E. Quatroche, Jacksonville, Fla.

Wilbur C. Smith, Ottumwa, Iowa.

Alfonso P. Stankaitis, Buffalo, N. Y.

George C. Sturges, Montpelier, Va.

Tony C. Wille, Jr., Frankfort, Ky.

CANCELLATIONS

Warren B. Ross, Little Rock, Ark.

Carey W. Thornton, Jr., Montgomery, Ala.

MILITARY FURLOUGH

James L. Fowler, Jacksonville, Fla.

RESIGNATION

Douglas V. Berglund, Mexico City, Mex.

RETIREMENTS

William F. Osterholtz, St. Louis, Mo.

Albert F. Paul, Jr., Baltimore, Md.

Benjamin H. Swim, Detroit, Mich.

TERMINATIONS

Clifford W. Barber, Gainesville, Ga.

Benjamin F. Cox, Raleigh, N. Car.

Erwin L. Jungherr, Storn, Conn.

Irwin Moulthrop, Salisbury, Md.

Virgil B. Robinson, Athens, Ga.

Ernest F. Waller, Newark, Dela.

TRANSFERS

Henderson E. Galbreath, from Omaha, Neb., to Denver, Colo.

Michael J. Polino, from Omaha, Neb., to Harrisburg, Pa.

John D. Puppel, from New York City, N. Y., to Sioux City, Iowa.

Joseph S. Sheridan, from Raleigh, N. Car., to Columbus, Ohio.

Ernest L. Wentz, from Omaha, Neb., to New York, N. Y.

Herbert R. Williams, from Omaha, Neb., to South St. Paul, Minn.

John L. Wilbur, Jr., from Mexico City, Mex., to Lincoln, Neb.

AMONG THE STATES AND PROVINCES

British Columbia

Pacific North-West Association.—The British Columbia Veterinary Association was host at the thirty-second annual meeting of the Pacific North-West Veterinary Medical Association in Vancouver on July 7-9, 1952. In addition to the British Columbia Association, the Washington and Oregon State Veterinary Medical Associations are also member associations. More than 120 veterinarians registered for this meeting.

The following speakers comprised the program: **Drs. W. R. Gunn**, chief veterinary inspector, Department of Agriculture, Victoria; **J. E. McCoy**, dean, College of Veterinary Medicine, State College of Washington, Pullman; **C. A. Mitchell**, chief, Division of Animal Pathology, Dominion Department of Agriculture, Ottawa; **E. F. Pallister**, Ontario Veterinary College, Guelph; **E. M. Dickenson**, Oregon State College, Corvallis; **R. L. Ott**, College of Veterinary Medicine, State College of Washington, Pullman; **C. A. Bjork**, Portland, Ore.; **L. G. Soderholm**, Hillsboro, Ore.; **C. Campbell**, director of veterinary professional services, Lederle Laboratories, St. Louis, Mo.; **P. Hinze**, Carnation Milk Farms, Carnation, Wash.; **R. Drew** and **H. Sproston**, Vancouver; **G. Talbot**, Kelowna, B. C.; and **E. Nundal**, Langley Prairie, B. C.

Dr. A. Savage of Winnipeg, Manitoba, was guest speaker at the annual banquet.

s/J. G. Jervis, Provincial Resident Secretary.

District of Columbia

Death of Major General Ireland.—Major General Merritt W. Ireland, M.C., U.S.A., Army Surgeon General from 1918 to 1931, died recently. General Ireland was elected an honorary member of the AVMA in 1919 in recognition of his friendly interest in, and support of, the newly born Veterinary Corps. He was one of the first to recommend that the head of that corps should have the rank of brigadier general in order to have the recognition appropriate to the responsibilities involved.

Indiana

Northwestern Association.—On July 24, the Northwestern Indiana Veterinary Medical Association met in Crown Point. **Dr. Hugh Kuhu** (M.D.), Hammond, showed slides and told of his recent trip through Africa. A round-table discussion of general practice problems followed.

Dr. and Mrs. C. Harvey Smith of Crown Point were hosts to the group.

s/J. L. Kixmiller, Resident Secretary.

Kansas

Southeast Association.—**Dr. W. E. Brock**, assistant veterinarian, Oklahoma Veterinary Research Institute, Pawhuska, Okla., discussed "Anaplasmosis" and "Phenothiazine in Calves," both reports on recent investigational work, at the July 27 meeting of the Southeast Kansas Veterinary Medical Association, in Burlington.

Dr. Ben Shambaugh, Jr., Burlington, president of the Kansas Veterinary Medical Association, was sponsor of the meeting, and **Dr. J. A. Porter, Jr.**, Fredonia, was chairman. This association meets monthly at varying locations in the district, and sometime during the last week of the month.

Refreshments were served to the 14 veterinarians in attendance by **Mrs. Ben Shambaugh, Jr.**

s/K. MAYNARD CURTS, Resident Secretary.

Kentucky

State Association.—The forty-first annual meeting of the Kentucky Veterinary Medical Association, held July 23-24 at Louisville, had

Animals Evacuated in New York Air Raid Drill



—United Press Photo

Civil defense volunteers conducted a full-scale rescue and evacuation exercise on Aug. 5, 1952, from a building in the Bronx. As a part of the demonstration, household pets were "rescued" along with human "casualties." **Dr. Jane Williamson (COR '49)** (at left) examines a dog "casualty."

an attendance of 150 and proved to be a most successful convention.

Highlights of the meeting were talks given by **Dr. L. M. Hutchings**, Purdue University, Lafayette, Ind., on "Swine Diseases"; **Dr. James Farquharson**, Colorado A. & M. College, Fort Collins, Colo., on "Surgical Techniques on Horses and Cattle"; and **Dr. Rokusaburo Muto**, member of the board of directors, Japan Veterinary Medical Association, Tokyo, Japan, on "Professional Relations Between the United States and Japan."

Those in attendance also enjoyed the outstanding papers presented by **Drs. J. Lavere Davidson**, the Upjohn Company, Kalamazoo, Mich.; **William F. Mosher**, L. A. Mosher Co., Atlanta, Ga.; **Emmett W. Spieth**, Jeffersonville, Ind.; **Anthony E. Bott**, Associated Serum Producers, Inc., Des Moines, Iowa; **P. E. Hull**, University of Kentucky, Lexington; and State Veterinarian **L. L. Breck**.

The new officers of the Association are **Drs. R. L. Wempe**, Morganfield, president; **E. L. Taylor**, Georgetown, first vice-president; **W. W. Boyd**, Hodgenville, second vice-president; **Jos. T. Stearns**, LaGrange, third vice-president; and **T. J. Stearns**, Louisville, Ky., secretary-treasurer. **Dr. J. A. Winkler**, Newport, was elected delegate to the AVMA House of Representatives.

S/T. J. STEARNS, Secretary.

Manitoba

Kiwanians International Honors Dr. Harry H. Ross.—The news of the election of Dr. Harry H. Ross, well-known veterinarian of

Brandon, as governor of the western Canada district of Kiwanians International for the year 1953 was carried in the *Brandon Daily Sun* for August 13. Dr. Ross received his D.V.M. degree from McKillip Veterinary College in 1914, and a postgraduate degree from Chicago Veterinary College in 1920. He has been active in Canadian veterinary circles for many years and has been a member of the AVMA since 1915.

Born in Manitoba in 1894, he returned to that province to practice actively for thirty years. He served with the Royal Canadian Veterinary Corps in World War I, attaining the rank of major. He settled in Brandon in 1918. He has served as president of the Manitoba Veterinary Medical Association, and represented the province at the Fourteenth International Veterinary Congress in London in 1949. He was an alternate delegate to the AVMA House of Representatives from his provincial association from 1940 to 1943, and was delegate in 1946.

Maryland

Walter C. Berger now with Chemical Corporation.—Walter C. Berger, former president of the American Feed Manufacturers Association, Chicago, and with the War Food Administration from 1943 to 1946, has been made executive vice-president of Shea Chemical Corporation of Baltimore, manufacturers of dicalcium phosphate for animal feeds.

Michigan

State College Department of Anatomy to Grant Ph.D. Degree.—The graduate council at Michigan State College has recently author-



Members of the Kentucky Veterinary Medical Association. The picture was taken at the time of organization, Oct. 7, 1911, in front of the old Galt House, Louisville. Dr. T. J. Stearns, secretary of the Kentucky V.M.A., sent the picture to the JOURNAL.

Front row (left to right)—**Drs. Otto Crisler**, Casey, Robert Graham, R. B. Smoot, J. T. Hawk, George Pedigo, E. N. Tierney.

Second row (left to right)—**Drs. W. F. Reide**, Allen S. Barnes, Wm. Robinson, A. O. Longnecker, Eisman, Stamper, J. K. Ditto, E. Calldemeier, R. Deats.

Third row (left to right)—**Drs. C. E. Stockton**, E. M. Lang, H. B. Buelter, R. L. Pontius, S. F. Musselman.

ized the Department of Anatomy at that institution to grant the Ph.D. degree. The staff is composed of Lois Calhoun, D.V.M., Ph.D.; J. F. Smithcors, D.V.M., Ph.D.; C. W. Titkemeyer, D.V.M., M.S.; Frederick Bowman, A.B., M.S.; R. K. Wolfer, B.S.; and T. W. Jenkins, B.S., M.S. The last four of the above group are working toward the Ph.D. degree and will have received it within the next three or four years.

Advance work may be pursued in the fields of gross anatomy, embryology, histology, and hematology. Supporting areas include chemistry, physiology, pathology, genetics, and education. In cooperation with the physics and physiology departments, study on radioactive isotopes may be pursued.

It is sincerely hoped that such opportunities may attract able veterinarians to the field of graduate study.

Minnesota

Death of Dr. Christopher Graham.—Dr. Christopher Graham, one of the founders of the Mayo Clinic, died at his home in Rochester on June 20 at the age of 96. He had the unique distinction of holding a degree in veterinary medicine as well as medicine, having received the former from the University of Pennsylvania in 1892 and the latter from the same institution in 1894. He became associated with Drs. W. J. and C. H. Mayo shortly afterward and soon established a reputation as an outstanding internist and surgical diagnostician on the team which brought world-wide recognition to the Clinic. Dr. Graham was wont to credit some of his diagnostic abilities to the training which he received as a veterinary student working with animals in which a keen sense of observation, plus findings of a physical examination,

were of paramount importance. He retired from the Clinic staff in 1919.

He was born in Cortland County, New York, in 1856 and received a B.S. degree from the University of Minnesota in 1887 before entering the University of Pennsylvania where, as a student, he was a roommate and classmate of the late Dr. John W. Adams, noted veterinary surgeon and faculty member at the university for many years.

Missouri

Kansas City Association.—The annual picnic and family outing of the Kansas City Veterinary Medical Association was held at the farm home of Dr. Joe Knappenberger in Olathe on August 16. Social activities and a dinner featuring fried chicken assured a good time for all.

S/K. MAYNARD CURTS, *Secretary.*

New Jersey

Death of Mrs. Edward R. Cushing.—Mrs. E. R. (Mary Acomb) Cushing, 947 Prospect Ave., Plainfield, died August 7 following a prolonged illness with heart disease. She was 55. Born in Dansville, N. Y., she had lived in Plainfield twenty-four years.

Beside her husband, a prominent veterinarian in New Jersey for many years, she is survived by a daughter, Mrs. Marie Cushing Messimer of New York City. Funeral services were conducted at the Congregational Church on August 9 and interment was in Dansville.

Washington

Veterinary College Represented at Pharmaceutical Meeting.—The College of Veterinary Medicine of the State College of Washington was represented at the centennial convention of the American Pharmaceutical Association in Philadelphia, Aug. 17-23, 1952, when Mr. Fred L. Williams presented a paper on "Means of Improving Relationships Between Pharmacists and Veterinarians." Mr. Williams teaches radiology and manages the pharmacy for the Department of Veterinary Surgery and Medicine.

S/R. E. WATTS, *Head, Clinical Laboratory.*

FOREIGN NEWS

Italy

International Congress on Microbiology.—The Sixth International Congress on Microbiology was held in Rome, Sept. 6-12, 1952. The Congress was divided into the following sections: general microbiology (cellular structure, physiology, etc.); special microbiology (bacteria, fungi, viruses, and rickettsiae, Protozoa, etc.) as applied to human, animal, and vegetal pathology, and to hygiene, agriculture, and industry; immunology; classification and nomenclature of microorganisms.

S/V. PUNTONI, *President.*



Speakers at the meeting of the Utah Veterinary Medical Association, July 18-19, 1952

Left to right—Dr. W. L. Boyd, president of the AVMA; Dr. F. J. Milne, Colorado A. & M. College; and Dr. M. L. Miner, Utah State College.

Korea

K-9 Corps Does Its Part.—Current dispatches from the lingering Korean "police action" indicate that the K-9 Corps is an important segment of the U. S. Army operations. One infantry unit (Chicago *Sun-Times*, Aug. 8, 1952) has been reinforced with 24 purebred German Shepherds which had been critically trained on the duties of war dogs by soldiers of that service in Iowa.—L.A.M.

STATE BOARD EXAMINATIONS

New York—The State Board of Veterinary Medical Examiners will hold examinations in New York City, Albany, Syracuse, and Buffalo, N.Y., on Oct. 14-17, 1952. The practical examination will be held at Ithaca, N. Y., on Friday, October 3. The dates of the 1953 examinations are as follows: June 23-26 and Oct. 6-9, 1953. The dates of the 1953 practical examination will be scheduled later. For further information, write James O. Hoyle, 23 South Pearl St., Albany 7, N.Y., secretary.

VETERINARY MILITARY SERVICE

Brigadier General McCallam Addresses ROTC Enrollees at Fort Sam Houston.—On August 1, Brig. Gen. James A. McCallam, chief,

Veterinary Division, S.G.O., and newly chosen president-elect of the AVMA, delivered the closing address to the 1952 veterinary ROTC enrollees who were in summer camp at Brooke Army Medical Center, Fort Sam Houston, Texas. Presently assigned to the Medical Service ROTC program are five Regular Army veterinary officers and one Regular Air Force veterinary officer assigned as professors of military science and tactics (P.M.S.&T.) in six of the approved veterinary medical schools throughout the country. Each of these officers was in attendance at the P.M.S.&T. Conference conducted at the Medical Service School, Fort Sam Houston, Aug. 4-7, 1952.

In addition to General McCallam, Lt. Col. Karl H. Willers, V.C., also attended the conference from the Surgeon General's Office.

Reserve Officers to Receive Credit Points.—

The annual meeting of the Association of Military Surgeons will be held at the Statler Hotel, Washington, D.C., on Nov. 17-19, 1952, under the presidency of Major General Harry G. Armstrong, Surgeon General of the Air Force. It will be devoted to subjects having direct military application. Point credits will be awarded to Reserve officers of the Veterinary Corps, as to all other medical corps, as follows: one point for each day of attendance, provided meetings attended total more than two hours.

BIRTHS

Dr. (KSC '46) and Mrs. Veryl Walstrom, Verdigris, Neb., announce the birth of a son, Verlyn Cleve, on Feb. 23, 1952.

Dr. (OSU '43) and Mrs. V. L. Nickell, Winchester, Ky., announce the birth of a son, Thomas Lisle, on June 7, 1952. The Nickells have two other children, Margaret and Marcia.

Dr. (OSU '44) and Mrs. Robert W. Vesper, Columbus, Ohio, announce the birth of a son, Richard Zinn, on June 14, 1952.

Dr. (TEX '45) and Mrs. Albert Roberson, Dallas, Texas, announce the arrival of Margaret Jo on July 4, 1952. She joins an older daughter, Anne Elizabeth who is seven.

Mr. and Mrs. Bob Brauchle (N. Annelda Baetz, API '47), San Antonio, Texas, announce the birth of a daughter, Phyllis Gayle, on July 9, 1952.

DEATHS

Roy Bailey, Sheridan, Mich., died on June 5, 1952. After practicing for fifty years at Vickeryville, Mich., Dr. Bailey retired and moved to Sheridan.

Herbert W. Burgess (ONT '89), Bennington, Vt., died Aug. 18, 1951. Dr. Burgess had retired from practice a number of years ago.



— U. S. Army Photo
During ceremonies in Japan, Major William L. Abbott (right), Naperville, Ill., receives the Bronze Star Medal from Colonel Randolph G. Norman, commanding officer of the Tokyo Quartermaster Depot in Japan. Major Abbott was commended for meritorious service while serving in Korea with the Veterinary Corps.

S. S. Callicoatte (ONT '07), Stamford, Texas, died April 4, 1952. Dr. Callicoatte was a general practitioner.

★**Frank E. Davis** (CVC '14), 69, East Hartford, Conn., died Aug. 8, 1952. Dr. Davis was employed by the U. S. Bureau of Animal Industry and was a member of the National Association of Federal Veterinarians. He was admitted to the AVMA in 1919.

Albert Dean (MCK '08), Chicago, Ill., died in 1949. Dr. Dean had retired from practice some time prior to his death.

Leonidas L. Denson, Jr. (API '22), 58, Starkville, Miss., died June 11, 1952. Dr. Denson was a member of the Mississippi State Veterinary Medical Association and the National Association of Federal Veterinarians. He had been a member of the AVMA.

★**Edward L. Dicke** (KCV '10), 62, Louisburg, Kan., died July 10, 1952. Dr. Dicke, who was also a farmer and a bank director in Louisburg, had an extensive veterinary practice. He had served as president of the Missouri Valley and Kansas State Veterinary Medical Associations. A son, Dr. Walter Dicke, Harrisonville, Mo., is president of the Kansas City Veterinary Medical Association; a son-in-law, Dr. Marvin Johnson, is a veterinarian at Paola, Kan.; another son-in-law, George Windisch, is a senior veterinary student at Kansas State College; and Dr. W. M. Dicke, a brother, is a veterinarian in Haywood, Calif. He is also survived by his widow, two daughters, another brother, and a sister.

Dr. Dicke was active in civic affairs and had served as a member of the high school board for eighteen years and was one of the most ardent workers in organizing the Louisburg Rural High School. He was a member of Peace Lodge No. 243, A.F. & A.M., Order of the Eastern Star No. 384 of Louisburg, and of the Louisburg Lions Club. He was admitted to the AVMA in 1924.

Harry H. Emerson (CVC '17), 61, Chicago, Ill., died recently. Dr. Emerson was a meat and dairy inspector. He had been a member of the AVMA.

William H. Ferguson (GR '05), Haslett, Mich., died April 25, 1952, at Tampa, Fla., where he had spent the winter. Dr. Ferguson had retired from practice.

Christopher Graham (UP '92) 96, Rochester, Minn., died on June 20, 1952. An obituary appears on page 325 of this issue of the JOURNAL.

John W. Harrigan (UP '90), Sharon Hill, Pa., died April 29, 1952.

Arthur E. Joseph (CVC '11), Lynwood, Calif., died in June, 1952. Dr. Joseph was a small animal practitioner.

★**T. A. Kragness** (MCK '01), 86, Chicago, Ill., died July 30, 1952. Dr. Kragness was a well-known and highly successful practitioner. He retired several years ago when his son

took over his practice. Dr. Kragness was admitted to the AVMA in 1910.

Seth Law (SF '16), 71, Loomis, Calif., died in May, 1952. Dr. Loomis had been a member of the AVMA.

John T. Liddle (ONT '88), 87, Medina, N.Y., died March 16, 1952. Dr. Liddle had retired from practice several years ago.

Clarence A. Milner (KCV '09), 76, San Diego, Calif., died April 2, 1952. Dr. Milner worked for the U. S. BAI as a meat inspector for thirty-five years until his retirement, after which he worked for the San Diego Health Department for an additional ten years. He is survived by his widow, two sons, and two grandchildren.

F. L. Oyster (GWU '17), 57, Washington, D. C., died in June, 1952. Dr. Oyster operated the Cashell Animal Hospital from 1945 until his retirement a few years ago due to ill health. He is survived by his widow, two sons, and a daughter.

Howard E. Pitts (GR '12), Marietta, Ohio, died March 16, 1952. Dr. Pitts was a general practitioner. He is survived by his widow.

Charles L. Stricker (CIN '15), Cincinnati, Ohio, died on April 4, 1952. Dr. Stricker had retired from practice several years ago.

★**Guy W. Rosenberger** (SF '06), 65, Huntington Park, Calif., died July 8, 1952. Dr. Rosenberger was employed by the U. S. Bureau of Animal Industry and was a member of the National Association of Federal Veterinarians. He had been a member of the AVMA for thirty-five years.

★**George A. Ruggles** (COL '33), 44, Seattle, Wash., died April 30, 1952. Dr. Ruggles was active in the Washington State and Seattle Veterinary Medical Associations where he had held several offices. He was admitted to the AVMA in 1936.

Ralph T. Skelton (OVC '12), 68, Gibsons Landing, B.C., died on May 2, 1952. Dr. Skelton served overseas with the R.A.V.C. during World War I. On his return, he established a practice at Kamsack, Sask. In 1930, he joined the Health of Animals Division, where he remained until his retirement in 1947. Dr. Skelton had been a member of the AVMA. He is survived by his widow, two daughters, and a son.

★**Harry W. Sutton** (COR '23), 55, Unadilla, N. Y., died July 21, 1952. Dr. Sutton was engaged in general practice. He was admitted to the AVMA in 1934.

Frederick Taylor (UP '99), New Wilmington, Pa., died May 10, 1952. Dr. Taylor had retired from practice.

Charles F. Vincent (MCK '08), Sandwich, Ill., died on March 7, 1952. Dr. Vincent had retired from practice.

★ Indicates members of the AVMA.

Official Roster, 1952-1953

American Veterinary Medical Association

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- K. W. Smith, *Diseases of Small Animals*, 1002 34th St., Sioux City, Ia.
- L. E. Fisher, *Diseases of Wildlife and Captive Animals*, 2823 Harlem Ave., Berwyn, Ill.
- Ray Fagan, *United States Public Health*, Midwest CDC Service, U.S.P.H.S., 3900 Eaton St., Kansas City 3, Kan.
- Brig. Gen. J. A. McCallam, *Army Veterinary Corps*, Veterinary Division, Office of the Surgeon General, Department of the Army, Washington 25, D. C.
- Col. Wayne O. Kester, *Air Force Veterinary Corps*, Veterinary Service, Office of the Surgeon General, Headquarters, U. S. Air Force, Washington 25, D. C.
- M. S. Shahan, *Bureau of Animal Industry*, Pathological Division, Bureau of Animal Industry, U. S. Department of Agriculture, Washington 25, D. C.

Section Officers*

- General Practice.—John D. Beck, *Chairman*, School of Veterinary Medicine, University of Pennsylvania, 39th St. and Woodland Ave., Philadelphia 4, Pa.; T. L. Steenenson, *Secretary*, Wilkin-son, Ind.
- Research.—James A. Baker, *Chairman*, New York State Veterinary College, Ithaca, N. Y.; Howard W. Dunne, *Secretary*, Veterinary Medical Division, Chemical Corps, Biology Laboratory, Camp Detrick, Frederick, Md.
- Small Animals.—Andrew G. Misenor, *Chairman*, 6448 N. Clark St., Chicago 26, Ill.; Harlan E. Jensen, *Secretary*, 8208 Carnegie Ave., Cleveland, Ohio.
- Poultry.—Henry Van Roekel, *Chairman*, Department of Veterinary Science, University of Massachusetts, Amherst, Mass.; Ronald Gwatkin, *Secretary*, Animal Disease Research Institute, Hull, Quebec.

*These officers also constitute the Committee on Program with the executive secretary or assistant executive secretary of the AVMA as chairman, ex officio.

- Surgery and Obstetrics.—George R. Moore, *Chairman*, Department of Surgery and Medicine, Michigan State College, East Lansing, Mich.; James A. Henderson, *Secretary*, Ontario Veterinary College, Guelph, Ont.
- Public Health.—Garth A. Edge, *Chairman*, 282 Redpath Ave., Toronto, Ont.; Robert F. Willson, *Secretary*, 334 Bates St., Detroit 26, Mich.

Women's Auxiliary

- Mrs. H. S. MacDonald, *President*, 51 Oakmount Rd., Toronto 9, Ont.
- Mrs. Russell A. Runnells, *President-Elect*, 511 Bailey St., East Lansing, Mich.
- Mrs. L. R. Richardson, *1st Vice-President*, 1089 W. Main St., Ravenna, Ohio.
- Mrs. Earl N. Moore, *2nd Vice-President*, 636 Beall Ave., Wooster, Ohio.
- Mrs. Alfred E. Coombs, *3rd Vice-President*, P.O. Box 174, Skowhegan, Maine.
- Mrs. C. M. Rodgers, *Secretary*, P.O. Drawer G, Blandinsville, Ill.
- Mrs. Charles C. Rife, *Treasurer*, 420 Edgewood Ave., N.E., Atlanta 3, Ga.

Standing Committees

Awards*

(Ex Officio)

- W. L. Boyd, *Chairman*, as *President of the AVMA*, 2227 Hillside Ave., St. Paul 8, Minn.
- Brig. Gen. J. A. McCallam, as *President-Elect of the AVMA*, Veterinary Division, Office of the Surgeon General, Department of the Army, Washington 25, D. C.
- Edwin Laitinen, as *Executive Board Chairman of the AVMA*, 993 N. Main St., West Hartford 7, Conn.
- T. Childs, as *Veterinary Director General of Canada*, Health of Animals Division, Department of Agriculture, Ottawa, Ont.
- W. A. Hagan, as *AVMA Representative to Division of Medical Sciences, National Research Council*, New York State Veterinary College, Ithaca, N. Y.
- Colonel Wayne O. Kester, *Alternate for Brig. Gen. J. A. McCallam*, as *Chief of the Veterinary Division*, Office of the Surgeon General, Headquarters U. S. Air Force, Washington 25, D. C.
- B. T. Simms, as *Chief of the BAI, U.S.D.A.*, Bureau of Animal Industry, U. S. Department of Agriculture, Washington 25, D. C.

*This committee is charged with the selection of recipients of the Twelfth International Veterinary Congress Prize, the Borden Award, and the AVMA Award.

Biological Products

- John W. Safford, *Chairman*, Veterinary Research Laboratory, Montana State College, Bozeman, Mont. (1954).
 William L. Gates, Box 417, Clarksdale, Miss. (1955).
 O. E. Herl, 1401 Oglethorpe St., N.W., Washington 11, D. C. (1957).
 E. L. Mundell, 2020 S. 14th St., Kansas City 2, Kan. (1956).
 L. R. Vawter, Department of Veterinary Medicine, Oregon State College, Corvallis, Ore. (1953).

Board of Trustees—Research Fund*(Ex Officio)*

- W. L. Boyd, *Chairman*, 2227 Hillside Ave., St. Paul 8, Minn.
 Brig. Gen. J. A. McCallam, Veterinary Division, Office of the Surgeon General, Department of the Army, Washington 25, D. C.
 Edwin Laitinen, 993 N. Main St., West Hartford 7, Conn.
 J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill.
 Harry E. Kingman, Jr., c/o Wilson & Co., 4100 Ashland Ave., Chicago 13, Ill.

Budget*(Ex Officio)*

- W. L. Boyd, *Chairman*, 2227 Hillside Ave., St. Paul 8, Minn.
 Brig. Gen. J. A. McCallam, Veterinary Division, Office of the Surgeon General, Department of the Army, Washington 25, D. C.
 Edwin Laitinen, 993 N. Main St., West Hartford 7, Conn.
 J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill.
 Harry E. Kingman, Jr., c/o Wilson & Co., 4100 Ashland Ave., Chicago 13, Ill.

Committee on Ethics

- J. A. Winkler, *Chairman*, Alexandria Pike, Cold Spring, Ky. (1953).
 L. A. Mosher, 268 Spring St., N. W., Atlanta, Ga. (1954).
 Raymond C. Snyder, Walnut St. and Copley Rd., Upper Darby, Pa. (1955).

Council on Education

- R. E. Rebrassier, **Secretary, Representing Basic Sciences*, Veterinary Laboratory, The Ohio State University, Columbus 10, Ohio (1954).
 I. B. Boughton, *Representing Research and Edu-*

- cation*, School of Veterinary Medicine, Texas A. & M. College, College Station, Texas (1958).
 Garth A. Edge, *Representing Public Health*, Provincial Department of Public Health, Toronto, Ont. (1957).
 James Farquharson, **Representing Clinical Sciences*, Division of Veterinary Medicine, Colorado A. & M. College, Fort Collins, Colo. (1956).
 S. W. Haigler, *Representing Small Animal Practice*, 7645 Delmar Blvd., St. Louis 5, Mo. (1954).
 C. C. Hastings, *Representing Large Animal Practice*, Williamsville, Ill. (1953).
 Lt. Col. William E. Jennings, *Representing Military Service*, Medical Field Service School, Fort Sam Houston, Texas (1956).
 Niel W. Pieper, **Representing General Practice*, Randolph Rd., Middletown, Conn. (1958).
 M. S. Shaban, *Representing Government Service*, Pathological Division, BAI, U. S. Department of Agriculture, Washington 25, D. C. (1955).

History

- H. P. Hoskins, *Chairman*, 2766 Garrison St., Evanston, Ill. (1955).
 Joseph M. Arburua, 26 Fell St., San Francisco, Calif. (1953).
 R. R. Dykstra, School of Veterinary Medicine, Kansas State College, Manhattan, Kan. (1954).
 Robert S. MacKellar, Sr., 329 W. 12th St., New York 14, N. Y. (1957).
 Charles Murray, Division of Veterinary Medicine, Iowa State College, Ames, Iowa (1956).

Joint Committee on Foods

- Louis A. Corwin, *Chairman*, 136-21 Hillside Ave., Richmond Hill 18, N. Y. (AAHA) (1953).
 J. G. Hardenbergh, *Secretary*, 600 S. Michigan Ave., Chicago 5, Ill. (AVMA) (1956).
 C. W. Bower, 1128 Kansas Ave., Topeka, Kan. (AAHA) (1957).
 J. B. Engle, 16 Fairfield Terrace, Short Hills, N. J. (AVMA) (1954).
 Lloyd C. Moss, Veterinary Hospital, Colorado A. & M. College, Fort Collins, Colo. (1955).

Legislation

- J. G. Hardenbergh, *Chairman, ex officio*, 600 S. Michigan Ave., Chicago 5, Ill.
 E. A. Davis, P.O. Box 1534, Columbus, Ga. (1956).
 C. C. Franks, P.O. Box 288, Springdale, Ark. (1953).
 Geo. W. Gillie, 628 Oakdale Dr., Ft. Wayne, Ind. (1955).
 B. T. Simms, Bureau of Animal Industry, U. S. Department of Agriculture, Washington 25, D. C. (1954).

*These three members comprise the Executive Committee of the Council and are elected by the Executive Board; the remaining members are appointed by the president.

Nutrition

- C. K. Whitehair, *Chairman*, College of Veterinary Medicine, University of Illinois, Urbana, Ill. (1956).
J. Gordon Anderson, 1016 9th Ave. W., Calgary, Alberta (1954).
T. J. Jones, School of Veterinary Medicine, University of Georgia, Athens, Ga. (1955).
William D. Pounden, 625 Sunrise View Dr., Wooster, Ohio (1957).
M. J. Swenson, School of Veterinary Medicine, Kansas State College, Manhattan, Kan. (1953).

Parasitology

- W. S. Bailey, *Chairman*, School of Veterinary Medicine, Alabama Polytechnic Institute, Auburn, Ala. (1956).
D. W. Baker, New York State Veterinary College, Cornell University, Ithaca, N. Y. (1953).
E. A. Benbrook, Department of Veterinary Pathology, Iowa State College, Ames, Iowa (1954).
Charles G. Durbin, R.F.D. 1, Box 46, College Park, Md. (1955).
Wendel Krull, School of Veterinary Medicine, Oklahoma A. & M. College, Stillwater, Okla. (1957).

Poultry

- C. D. Lee, *Chairman*, Poultry Department, Iowa State College, Ames, Iowa (1955).
J. O. Alberts, College of Veterinary Medicine, University of Illinois, Urbana, Ill. (1954).
C. W. Barber, Gainesville Poultry Laboratory, S. Main St., Gainesville, Ga. (1956).
Ellis E. Jones, 714 S. Santa Anita St., San Gabriel, Calif. (1953).
B. S. Pomeroy, 1443 Raymond Ave., St. Paul 8, Minn. (1957).

Public Relations

- A. H. Quin, *Chairman*, 239 E. 72nd Terrace, Kansas City 5, Mo. (1954).
E. C. Chamberlayne, Oficina Sanitaria Panamericana-Edificio Confina-Jiron Lima No. 169-Lima, Peru (1956).
W. M. Coffee, La Center, Ky. (1953).
A. G. Madden, Jr., Madeira, Ohio (1955).
Myron A. Thom, 959 S. Raymond Ave., Pasadena 2, Calif. (1957).

Registry of Veterinary Pathology Armed Forces Institute of Pathology

- A. W. Monlux, *Chairman*, Building 45, Entrance B, Denver Federal Center, Denver 1, Colo. (1954).

Major Chester A. Gleiser, Armed Forces Institute of Pathology, 7th St. and Independence Ave., Washington, D. C. (1955).

Hugh G. Grady, Scientific Director, American Registry of Pathology, Army Medical Museum, Washington 25, D. C. (Consulting member).

Hilton A. Smith, Veterinary Laboratory, Texas A. & M. College, College Station, Texas (1953).

Research Council

(Appointments are for three-year terms)

Anatomy and Histology.—Robert Getty, Department of Anatomy, Iowa State College, Ames, Iowa (1955).

Bacteriology (Immunology and Biologic Therapy).—L. C. Ferguson, 2456 Lexington Ave., Columbus 3, Ohio (1953).

Biochemistry and Animal Nutrition.—T. J. Jones, Dean, School of Veterinary Medicine, University of Georgia, Athens, Ga. (1953).

Large Animal Medicine.—James Farquharson, Division of Veterinary Medicine, Colorado A. & M. College, Fort Collins, Colo. (1953).

Large Animal Surgery.—A. G. Danks, New York State Veterinary College, Cornell University, Ithaca, N. Y. (1954).

Parasitology.—R. D. Turk, School of Veterinary Medicine, Texas A. & M. College, College Station, Texas (1954).

Pathology.—T. Lloyd Jones, Principal, Ontario Veterinary College, Guelph, Ont. (1953).

Physiology and Pharmacology.—D. K. Detweiler, 48 Sproul Rd., Broomall, Pa. (1953).

Poultry Pathology.—C. A. Brandly, Department of Veterinary Science, University of Wisconsin, Madison, Wis. (1954).

Small Animal Medicine.—Jean C. Flint, 1220 S. State St., Salt Lake City, Utah (1955).

Small Animal Surgery.—J. E. Greene, School of Veterinary Medicine, Alabama Polytechnic Institute, Auburn, Ala. (1955).

Veterinary Hygiene.—A. G. Karlson, Mayo Foundation, Rochester, Minn. (1955).

Virus Diseases.—C. H. Cunningham, School of Veterinary Medicine, Michigan State College, East Lansing, Mich. (1955).

X-Ray.—M. A. Emmerson, *Chairman*, Division of Veterinary Medicine, Iowa State College, Ames, Iowa (1954).

Member-at-Large.—D. A. Sanders, Agricultural Experiment Station, University of Florida, Gainesville, Fla. (1954).

Resolutions

- A. A. Husman, *Chairman*, 320 Agriculture Bldg., Raleigh, N. Car.
 J. G. Hardenbergh, *Secretary, ex officio*, 600 S. Michigan Ave., Chicago 5, Ill.
 C. F. Clark, School of Veterinary Medicine, Michigan State College, East Lansing, Mich.
 Floyd Cross, Division of Veterinary Medicine, Colorado A. & M. College, Fort Collins, Colo.
 Harry Evenson, Sacred Heart, Minn.
 George H. Hart, School of Veterinary Medicine, University Farm, Davis, Calif.
 E. A. Tunnicliff, Veterinary Research Laboratory, Montana Agricultural Experiment Station, Bozeman, Mont.

Subcommittee on Veterinary Items, National
Formulary Committee

(Ten-year appointments terminating in 1959)

- B. V. Alfredson, *Chairman*, School of Veterinary Medicine, Michigan State College, East Lansing, Mich.
 D. K. Detweiler, 48 Sproul Rd., Broomall, Pa.
 L. Meyer Jones, Division of Veterinary Medicine, Iowa State College, Ames, Iowa.
 F. J. Kingma, Veterinary Laboratory, College of Veterinary Medicine, The Ohio State University, Columbus, Ohio
 H. J. Milks, New York State Veterinary College, Cornell University, Ithaca, N. Y.

Therapeutic Agents

- Roger P. Link, *Chairman*, Department of Veterinary Physiology and Pharmacology, University of Illinois, Urbana, Ill. (1956).
 D. K. Detweiler, 48 Sproul Rd., Broomall, Pa. (1953).
 L. A. Gendreau, 67 Wellington St. S., Sherbrooke, Que. (1957).
 R. C. Glover, 1021 Davis St., Evanston, Ill. (1954).
 L. Meyer Jones, Division of Veterinary Medicine, Iowa State College, Ames, Iowa (1955).

Special Committees

(Terms are for one year unless reappointed)

Animal Reproduction and Artificial
Insemination

- J. A. Henderson, *Chairman*, Ontario Veterinary College, Guelph, Ont.
 William H. Dreher, Shawano, Wis.
 Myron G. Fincher, 118 Delaware Ave., Ithaca, N. Y.
 J. C. Ramge, 81 Sharon Spring Dr., Worthington, Ohio.
 Greg R. Raps, Rt. 4, 12th St. Rd., Des Moines, Iowa.

Anthrax

- A. H. Wolff, *Chairman*, 6174 Joyce Lane, Cincinnati 37, Ohio.
 Frank Breed, 2940 Georgian Court, Lincoln 2, Neb.
 H. G. Geyer, Division of Animal Industry, Ohio Department of Agriculture, Columbus 15, Ohio.
 T. L. Steenerson, Wilkinson, Ind.
 C. D. Stein, Bureau of Animal Industry, U. S. Department of Agriculture, Washington 25, D. C.

Brucellosis

- J. L. McAuliff, *Chairman*, 11 Jewett Ave., Cortland, N. Y.
 D. T. Berman, Department of Veterinary Science, University of Wisconsin, Madison 5, Wis.
 A. B. Christian, Biltmore Dairy Farms, Biltmore, N. Car.
 P. G. MacKintosh, P.O. Box 856, Yakima, Wash.
 C. K. Mingle, 4512 Oliver St., Riverdale, Md.
 A. M. Orum, P.O. Box 355, Carthage, Ill.

Canine Infectious Hepatitis

- James A. Baker, *Chairman*, New York State Veterinary College, Ithaca, N. Y.
 Harlan E. Jensen, 8208 Carnegie Ave., Cleveland, Ohio.
 Ralph E. Witter, College of Veterinary Medicine, University of Illinois, Urbana, Ill.

Diseases of Wild and Furbearing Animals

- John R. Gorham, *Chairman*, Department of Veterinary Science, University of Wisconsin, Madison, Wis.
 T. T. Chaddock, Box 51, Bridgeport, Mich.
 O. J. Hummon, 2183 Roselawn Ave. W., St. Paul 8, Minn.
 Patricia O'Connor, 97 Broad St., Stapleton, Staten Island, N. Y.
 E. R. Quortrup, Livestock Department, 4005 Rosecrans, Bldg. 2, San Diego 12, Calif.

Emergency Advisory Committee

- W. R. Krill, *Chairman*, College of Veterinary Medicine, The Ohio State University, Columbus 10, Ohio.
 C. D. Van Houweling, *Secretary*, 600 S. Michigan Ave., Chicago 5, Ill.
 M. R. Clarkson, 5569 N. 16th St., Arlington, Va.
 J. B. Engle, 16 Fairfield Terr., Short Hills, N. J.
 W. R. Hinshaw, Camp Detrick, Frederick, Md.
 Col. Wayne O. Kester, Veterinary Service, Office of the Surgeon General, Headquarters U. S. Air Force, Washington 25, D. C.

Brig. Gen. J. A. McCallam, Veterinary Division, Office of the Surgeon General, Department of the Army, Washington 25, D. C.

Frank A. Todd, Federal Civil Defense Administration, 1930 Columbia Rd., Washington, D. C.

Ex Officio: Edwin Laitinen and/or other members of the Board of Governors.

Food and Milk Hygiene

Raymond H. Helvig, *Chairman*, Milk and Food Section, Sanitary Engineering Division, U.S.P.H.S., Washington, D. C.

Lt. Col. George D. Batchelder, Chicago QM Depot, 1819 W. Pershing Rd., Chicago 9, Ill.

J. W. Cunkelman, Veterinary Division, Research Department, Swift & Co., Chicago, Ill.

R. Allen Packer, Department of Veterinary Hygiene, Iowa State College, Ames, Iowa.

C. H. Pals, Bureau of Animal Industry, U. S. Department of Agriculture, Washington 25, D. C.

H. J. Stafseth, Department of Bacteriology, Michigan State College, East Lansing, Mich.

Humane Act Award

George W. Mather, *Chairman*, Division of Veterinary Medicine, University Farm, St. Paul 1, Minn.

Gerry B. Schnelle, 180 Longwood Ave., Boston, Mass.

Mr. J. J. Shaffer, *Advisory Member*, 157 W. Grand Ave., Chicago 10, Ill.

R. L. Stowe, 149 Otsego Ave., San Francisco, Calif.

A. R. Theobald, 4545 Reading Road, Cincinnati 29, Ohio.

Infectious Atrophic Rhinitis

H. C. H. Kernkamp, *Chairman*, University Farm, St. Paul 1, Minn.

L. P. Doyle, Department of Veterinary Science, Purdue University, Lafayette, Ind.

H. C. Smith, 2415 W. Solway, Sioux City 5, Iowa.

Leptospirosis in Cattle and Swine

Major William S. Gochenour, Jr., *Chairman*, Research and Graduate School, Veterinary Division, Army Medical Center, Washington 12, D. C.

Donald E. Jasper, School of Veterinary Medicine, University of California, Davis, Calif.

J. D. Ray, White Hall, Ill.

Karl R. Reinhard, Rocky Mountain Laboratory, Public Health Service, Federal Security Agency, Hamilton, Mont.

William L. Sippel, Georgia Coastal Plain Experiment Station, Tifton, Ga.

Charles J. York, Department of Pathology and Bacteriology, New York State Veterinary College, Ithaca, N. Y.

Medical Care of Laboratory Animals

W. T. S. Thorp, *Chairman*, Pathology Laboratory, National Institutes of Health, Bethesda 14, Md.

N. R. Brewer, Physiology Bldg., University of Chicago, Chicago, Ill.

Jules S. Cass, Kettering Laboratory, College of Medicine, Eden Ave., Cincinnati 19, Ohio.

W. H. Dieterich, First Army Area Medical Laboratory, 90 Church St., New York 7, N. Y.

L. E. Fisher, 2823 S. Harlem Ave., Berwyn, Ill.

R. Dale Henthorne, Medical Division, Army Chemical Center, Md.

Nomenclature of Diseases

Carl Olson, Jr., *Chairman*, Department of Animal Pathology and Hygiene, University of Nebraska, Lincoln, Neb.

C. Lawrence Blakely, Angell Memorial Animal Hospital, 180 Longwood Ave., Boston, Mass.

Henry J. Griffiths, School of Veterinary Medicine, University Farm, St. Paul, Minn.

I. A. Merchant, Division of Veterinary Medicine, Iowa State College, Ames, Iowa.

Peter Olafson, New York State Veterinary College, Cornell University, Ithaca, N. Y.

H. C. Stephenson, New York State Veterinary College, Cornell University, Ithaca, N. Y.

Frank Thorp, Jr., Department of Animal Pathology, School of Veterinary Medicine, Michigan State College, East Lansing, Mich.

Program*

(*Ex Officio*)

This committee is composed of the chairmen and secretaries of the six sections with the executive secretary or assistant executive secretary acting as the chairman. (See Section Officers, page 329.)

*Pursuant to article XII, section 1, part 4, of the Administrative By-Laws, as amended at the Seventy-Eighth Annual Meeting.

Public Health

J. H. Steele, *Chairman*, CDC, U.S.P.H.S., 50 7th St., N.E., Atlanta 5, Ga.

P. R. Carter, 129 S. Aberdeen St., Arlington, Va.

G. S. Failing, 469 W. 7th St., Winona, Minn.

L. E. Fredrickson, Highland, Ill.

Albert R. Miller, 366 N. Washington St., Falls Church, Va.

Rabies Control

- E. S. Tierkel, *Chairman*, U.S.P.H.S., CDC, 50th St., N.E., Atlanta 5, Ga.
 A. L. Brueckner, 4111 Colesville Rd., Hyattsville, Md.
 J. Raymond Currey, 5313 Wisconsin Ave., N. W., Washington 15, D. C.
 Fred W. Gehrman, 12720 Wayzata Blvd., Minneapolis 16, Minn.
 J. S. McDaniel, 420 Rutherford Ave., Trenton 8, N. J.
 Robert F. Willson, 338 Bates St., Detroit, Mich.

Research Fund-Raising Committee

- W. G. Brock, *Chairman*, 110 Exposition Ave., Dallas, Texas.
 C. A. Brandly, Department of Veterinary Science, University of Wisconsin, Madison 5, Wis.
 Cecil Elder, School of Veterinary Medicine, University of Missouri, Columbia, Mo.
 A. H. Quin, 239 East 72nd Terrace, Kansas City 5, Mo.
 C. F. Schlotthauer, 508 15th Ave., S. W., Rochester, Minn.

Scientific Exhibits

- N. R. Brewer, *Chairman*, Physiology Bldg., University of Chicago, Chicago 37, Ill.
 C. D. Van Houweling, *Secretary*, 600 S. Michigan Ave., Chicago 5, Ill.
 E. A. Benbrook, Department of Veterinary Pathology, Iowa State College, Ames, Iowa.
 J. V. Lacroix, Box 872, Evanston, Ill.
 J. R. Pickard, Livestock Conservation Inc., 405 Exchange Bldg., Union Stockyards, Chicago, Ill.

Standards for Veterinary Hospitals

- Lloyd C. Moss, *Chairman*, Veterinary Hospital, Colorado A. & M. College, Fort Collins, Colo.
 J. C. Carey, West Liberty, Iowa.
 A. F. Hayes, P.O. Box 1703, Billings, Mont.
 L. H. La Fond, 3191 W. Eight Mile Rd., Detroit 21, Mich.
 G. B. Schnelle, 180 Longwood Ave., Boston, Mass.

Committee on Trichloroethylene-
Extracted Soybean Meal Poisoning

- W. R. Pritchard, *Chairman*, School of Veterinary Medicine, University Farm, St. Paul 1, Minn.
 H. E. Biester, Veterinary Research Institute, Iowa State College, Ames, Iowa.
 D. F. Eveleth, Department of Veterinary Science, North Dakota Agricultural College, Fargo, N. Dak.
 Rue Jensen, Division of Veterinary Medicine, Colorado A. & M. College, Fort Collins, Colo.

Veterinary Service

- I. D. Wilson, *Chairman*, Virginia Polytechnic Institute, Blacksburg, Va.
 C. D. Van Houweling, *Secretary*, 600 S. Michigan Ave., Chicago 5, Ill.
 E. J. Frick, School of Veterinary Medicine, Kansas State College, Manhattan, Kan.
 L. A. Mosher, Box 1533, Atlanta 1, Ga.
 J. T. Schwab, 3128 Oxford St., Madison 5, Wis.

Representatives

(Terms are for one year except as shown)

- American Association for the Advancement of Science.—W. H. Feldman, 926 8th Ave., S.W., Rochester, Minn.
 American Medical Association Council on National Emergency Medical Service.—C. D. Van Houweling, 600 S. Michigan Ave., Chicago 5, Ill.
 Army Medical Library, Honorary Consulting Board.—J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill.
 Livestock Conservation, Inc.—W. E. Logan, Box 174, Harrisburg, Pa. (1953).
 National Brucellosis Committee.—A. M. Orum, Box 355, Carthage, Ill.
 National Research Council (Division of Biology and Agriculture).—E. P. Johnson, Box 593, Blacksburg, Va. (1954).
 National Research Council, Division of Medical Sciences.—W. A. Hagan, New York Veterinary College, Ithaca, N. Y. (1953).
 National Society for Medical Research.—C. F. Schlotthauer, 508 15th Ave., S.W., Rochester, Minn.
 Ralston Purina Research Fellowship Committee.—M. A. Emerson, Division of Veterinary Medicine, Iowa State College, Ames, Iowa (1953).
 United States Pharmacopoeial Convention.—H. E. Moskey, Food and Drug Administration, Federal Security Agency, Washington 25, D. C. (1960).

Resident State Secretaries

- Alabama.—McKenzie Heath, 213 N. 15th St., Birmingham 3.
 Arizona.—William E. Snodgrass, 4331 N. 20th St., Phoenix.
 Arkansas.—W. L. Thomas, 906 Broadway, Little Rock.
 California.—E. E. Jones, 714 S. Santa Anita St., San Gabriel.
 Colorado.—Robert K. Anderson, 122 S. Bryant St., Denver.
 Connecticut.—Niel W. Pieper, Randolph Rd., Middletown.
 Delaware.—E. F. Waller, 718 Academy St., Newark.
 District of Columbia.—Lawrence O. Mott, Research Center, Beltsville, Md.

Florida.—D. A. Sanders, Agricultural Experiment Station, University of Florida, Gainesville.

Georgia.—Charles C. Rife, 420 Edgewood Ave. N.E., Atlanta 3.

Idaho.—A. P. Schneider, 108 Capitol Bldg., Boise.

Illinois.—A. G. Misener, 6448 N. Clark St., Chicago 26.

Indiana.—John L. Kixmiller, 4144 N. Capitol Ave., Indianapolis 8.

Iowa.—F. B. Young, P.O. Box 6, Waukegan.

Kansas.—K. M. Curtis, 70 Central Ave., Kansas City.

Kentucky.—L. M. Roach, Versailles Rd., Frankfort.

Louisiana.—R. B. Lank, Dalrymple Bldg., Louisiana State University, Baton Rouge.

Maine.—J. F. Witter, Department of Animal Industry, University of Maine, Orono.

Maryland.—John D. Gadd, Falls Rd., Cockeysville.

Massachusetts.—L. A. Paquin, Box 225, Webster.

Michigan.—Paul V. Howard, 4011 Hunsberger N.E., Grand Rapids.

Minnesota.—Henry J. Griffiths, School of Veterinary Medicine, University of Minnesota, St. Paul 1.

Mississippi.—W. L. Gates, Box 417, Clarksdale.

Missouri.—A. H. Groth, College of Veterinary Medicine, University of Missouri, Columbia.

Montana.—A. M. Jasmin, Livestock Sanitary Board, Helena.

Nebraska.—Paul L. Matthews, 4901 S. 33rd St., Omaha.

Nevada.—Edward Records, University of Nevada, Reno.

New Hampshire.—Carl L. Martin, 85 Charles St., Rochester.

New Jersey.—J. R. Porteus, P.O. Box 938, Trenton 5.

New Mexico.—S. W. Wiest, P.O. Box 75, Santa Fe.

New York.—C. P. Zepp, Sr., 136 W. 53rd St., New York 19.

North Carolina.—C. W. Young, 29 Court Sq., Mocksville.

North Dakota.—Frederik Low, 450 8th St., N.W., Valley City.

Ohio.—D. O. Jones, Veterinary Laboratory, The Ohio State University, Columbus 10.

Oklahoma.—C. H. Fauks, 3421 N.W., 20th St., Oklahoma City.

Oregon.—Edward L. Holden, P.O. Box 445, Oswego.

Pennsylvania.—Roy D. Hoffman, 325 S. Richard St., Bedford.

Rhode Island.—J. S. Barber, 560 Pleasant St., Pawtucket.

South Carolina.—F. P. Caughman, Jr., Box 5125, Columbia 5.

South Dakota.—R. M. Scott, 2419 S. Main Ave., Sioux Falls.

Tennessee.—Hugh Lamb, P.O. Box 550, Athens.

Texas.—L. G. Cloud, 2833 W. 7th St., Fort Worth.

Utah.—Hugh Hurst, 1754 E. 27th St. S., Salt Lake City.

Vermont.—W. B. Durrell, Department of Animal Pathology, University of Vermont, Burlington.

Virginia.—W. L. Bendix, 1102 State Office Bldg., Richmond.

Washington.—J. L. Ellis, 2022 E. 4th Ave., Olympia.

West Virginia.—S. E. Hershey, Box 283, Charleston.

Wisconsin.—J. T. Schwab, 3218 Oxford Rd., Madison 5.

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COMING MEETINGS

Notices of Coming Meetings must be received by 4th of month preceding date of issue

Purdue University. Annual short course for veterinarians. Purdue University, Lafayette, Ind., Oct. 1-3, 1952. L. M. Hutchings, Purdue University, chairman, short course committee.

Missouri annual short course for graduate veterinarians. University of Missouri, Columbia, Mo., Oct. 6-7, 1952. Cecil Elder, School of Veterinary Medicine, University of Missouri, Columbia, Mo., chairman.

New England Veterinary Medical Association. Annual meeting. Mt. Washington Hotel, Bretton Woods, N. H., Oct. 6-7, 1952. Wilson R. Haubrich, Claremont, N. H., secretary.

Pennsylvania State Veterinary Medical Association. Annual meeting. Pocono Manor Inn, Pocono Manor, Pa., Oct. 7-10, 1952. Dr. R. C. Snyder, Walnut St. and Copley Rd., Upper Darby, Pa., secretary.

Eastern Iowa Veterinary Association. Annual meeting. Montrose Hotel, Cedar Rapids, Iowa, Oct. 9-10, 1952. N. R. Waggoner, Olin, Iowa, secretary.

South Central Texas Veterinary Association. Annual meeting. Gunter Hotel, San Antonio, Texas, Oct. 11, 1952. G. W. Parker, 1619 Pleasanton Road, San Antonio, Texas, secretary.

West Virginia Veterinary Medical Association. Annual meeting. Kanawha Hotel, Charleston, W. Va., Oct. 12-13, 1952. Elvin R. Coon, Room 98 Capitol Building, Charleston 5, W. Va., secretary.

South Dakota Veterinary Medical Association. Annual meeting. Sioux Falls, S. Dak., Oct. 16-17, 1952. R. M. Scott, 2419 S. Main St., Sioux Falls, S. Dak., secretary.

American Public Health Association. Annual meeting. Public Auditorium, Cleveland, Ohio, Oct. 20-24, 1952. Dr. Reginald M. Atwater, American Public Health Association, 1790 Broadway, New York, N. Y., executive secretary.

Minnesota, University of. Annual short course. University Farm, St. Paul, Minn., Oct. 23-24, 1952. J. P. Arnold, University of Minnesota, chairman of short course committee.

University of Illinois conference for veterinarians. College of Veterinary Medicine, University of Illinois, Urbana, Ill., Oct. 24-25, 1952. Jesse Sampson, head, Department of Veterinary Physiology and Pharmacology.

Mississippi Valley Veterinary Medical Association. Annual meeting. Hotel Pere Marquette, Peoria, Ill., Oct. 28-29, 1952. A. C. Gathmann, 202 Front St., Galva, Ill., secretary.

United States Livestock Sanitary Association. Annual meeting. Hotel Seelbach, Louisville, Ky., Oct. 29-31, 1952. R. A. Hendershott, 1 West State St., Trenton 8, N. J., secretary. Copies of the Annual Proceedings of the U. S. L.S.A. are available at \$5 per copy.

Interstate Veterinary Medical Association. Annual meeting. Martin Hotel, Sioux City, Iowa, Oct. 30-31, 1952. E. G. Cole, 510 West 19th St., Sioux City 3, Iowa, secretary.

Midwest Small Animal Association, annual meeting, and American Animal Hospital Association, regional meeting. Hotel Burlington, Burlington, Iowa, Nov. 12-13, 1952. J. Porter Coble, 2828 S. MacArthur Blvd., Springfield, Ill., secretary.

Southern Veterinary Medical Association. Annual meeting. Hotel Heidelberg, Jackson, Miss., Nov. 17-19, 1952. A. A. Husman, Raleigh, N. Car., secretary.

Animal Care Panel. Annual meeting. University of Illinois, Chicago Professional Colleges, Chicago, Ill., Dec. 3-4, 1952. Bennett J. Cohen, Northwestern University Medical School, 303 E. Chicago Ave., Chicago 11, Ill., secretary.

Maryland State Veterinary Medical Association. Annual winter meeting. Lord Baltimore Hotel, Baltimore, Md., Dec. 5-6, 1952. John D. Gadd, Cockeysville, Md., secretary.

University of Pennsylvania. Annual conference for veterinarians. School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., Jan. 6-7, 1953.

Ohio State Veterinary Medical Association. Annual meeting. Deshler-Wallick Hotel, Columbus, Ohio, Jan. 7-9, 1953. F. J. Kingma, Veterinary Laboratory, The Ohio State University, Columbus 10, Ohio, secretary.

(Continued on p. 34)



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New York State Veterinary College. Annual conference for veterinarians. New York State Veterinary College, Cornell University, Ithaca, N. Y., Jan. 7-9, 1953. W. A. Hagan, dean.

Oklahoma Veterinary Medical Association. Annual meeting. Biltmore Hotel, Oklahoma City, Okla., Jan. 12-13, 1953. Lewis H. Moe, Oklahoma A. & M. College, Stillwater, Okla., secretary.

Tri-State (Mississippi, Arkansas, Tennessee) Veterinary Medical Association. Annual meeting. Hotel Peabody, Memphis, Tenn., Jan. 12-14, 1953. W. L. Thomas, 906 Broadway, Little Rock, Ark., chairman.

Indiana Veterinary Medical Association. Annual meeting. Hotel Severin, Indianapolis, Ind., Jan. 14-16, 1953. W. W. Garverick, Zionsville, Ind., secretary.

Intermountain Veterinary Medical Association. Annual meeting. Newhouse Hotel, Salt Lake City, Utah, Jan. 19-21, 1953. H. F. Wilkins, Montana Livestock Sanitary Board, Helena, Mont., chairman, program committee.

Michigan State College. Annual postgraduate conference for veterinarians. Michigan State College, East Lansing, Mich., Jan. 21-22, 1953. G. R. Moore, Department of Surgery and Medicine, chairman.

Minnesota State Veterinary Medical Society. Annual meeting. Nicollet Hotel, Minneapolis, Minn., Jan. 26-28, 1953. B. S. Pomerooy, St. Paul 1, Minn., secretary.

California State Veterinary Medical Association. Midwinter Annual meeting, Davis, Calif., Jan. 26-28, 1953. W. J. Zontine, 1014 Yucca Ave., Lancaster, Calif., program chairman.

Illinois State Veterinary Medical Association. Annual meeting. Hotel Sherman, Chicago, Ill., Jan. 28-30, 1953. A. G. Misener, 6448 North Clark St., Chicago 26, Ill., secretary.

American Veterinary Medical Association. Annual meeting. Royal York Hotel, Toronto, Ont., July 20-23, 1953. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

Regularly Scheduled Meetings

Bay Counties Veterinary Medical Association. the second Tuesday of each month. Richard L. Stowe, 149 Otsego Ave., San Francisco, Calif., secretary.

Cedar Valley Veterinary Association, the second Monday of each month (except July and August) at Black's Tea Room, Waterloo. F. E. Brutsman, Traer, Iowa, secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month.

(Continued on p. 36)

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¹ Bryan, A. H.: Clinical Observations on Nupercainal as a Local Anesthetic. N. A. Veterinarian, 27:749-750, 1941.



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W. E. Smith, 516 Oatman, Sanger, Calif., secretary.

Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel in Greensboro. Mr. Earl D. Adams, Greensboro, N. Car., secretary.

Chicago Veterinary Medical Association, the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.

Coon Valley Veterinary Association, the second Wednesday of each month, September through May, at the Bradford Hotel, Storm Lake, Iowa. V. D. Ladwig, Sac City, Iowa, secretary.

Cuyahoga County (Cleveland, Ohio) Veterinary Medical Association, the first Wednesday of each month—September through May (except January)—at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. Roger W. Grundish, 4217 Mayfield Road, South Euclid 21, Ohio, secretary.

East Bay Veterinary Medical Association, bi-monthly, the fourth Wednesday. Robert Clemens, 23352 Orchard, Hayward, Calif., secretary.

Fayette County Veterinary Association, Iowa, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Florida, North-East Florida Veterinary Medical Association, the second Thursday of each month, time and place specified monthly. J. O. Whiddon, 829 San Marco Blvd., Jacksonville, Fla.

Greater St. Louis Veterinary Medical Association. Ralston-Purina Research Building, St. Louis, Mo., the first Friday in February, April, June, and November. W. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.

Houston Veterinary Medical Association, Houston, Texas, the first Thursday of each month. Edward Lepon, Houston, Texas, secretary-treasurer.

Illinois Valley Veterinary Medical Association, the second Sunday evening of even-numbered months at the Jefferson Hotel, Peoria, Ill. S. M. McCully, Lacon, Ill., secretary.

Indiana Tenth District Veterinary Medical Association, third Thursday of each month. L. A. Snider, New Palestine, Ind., secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month, in Louisville or within a radius of 50 miles. F. M. Kearns, 3622 Frankfort Ave., Louisville 7, Ky., secretary.

Kansas City Small Animal Hospital Association, the first Monday of each month, at the Hotel

(Continued on p. 38)

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Continental. T. M. Eagle, Parkville, Route 2, Mo., secretary.

Kansas City Veterinary Medical Association, the third Tuesday of each month, in the Hotel Continental, 11th and Baltimore, Kansas City, Mo. K. M. Curtis, 70 Central Ave., Kansas City 18, Kan., secretary.

Kern County Veterinary Medical Association, the first Thursday of each month. Richard A. Stiern, 17 Niles St., Bakersfield, Calif., secretary.

Keystone Veterinary Medical Association, the Philadelphia County Medical Society Building, 301 S. 21st Street, Philadelphia, Pa., on the fourth Wednesday of each month. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia 4, Pa., secretary.

Kyowva Veterinary Medical Association, the second Thursday of each month in the Hotel Prichard, Huntington, W. Va., at 8:30 p.m. Karl Mayer, 1531 Fourth Ave., Huntington, W. Va., secretary.

Maricopa County Veterinary Association, the second Tuesday of each month. Charles J. Prechal, 1722 East Almeria Road, Phoenix, Ariz., secretary.

Metropolitan New Jersey Veterinary Medical Association, the third Wednesday evening of each month from September through May, at the Academy of Medicine of Northern New Jersey, 91 Lincoln Park South, Newark, N. J. Myron S. Arlein, 2172 Millburn Ave., Maplewood, N. J., secretary.

Michiana Veterinary Medical Association, the second Thursday of each month. Write M. L. Livingston, Hartford, Mich., secretary, for location.

Michigan, Southeastern Veterinary Medical Society. Herman Kiefer Hospital, Detroit, Mich., the second Wednesday of each month from October through May.

Mid-Coast Veterinary Medical Association, the first Thursday of every even month. C. Edward Taylor, 2146 S. Broad St., San Luis Obispo, Calif., secretary.

Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humbolt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.

Mobile-Baldwin Veterinary Medical Association, the first Tuesday of each month at the Hotel Admiral Simmes, Mobile, Ala. C. Eric Kennedy, Mobile, Ala., secretary.

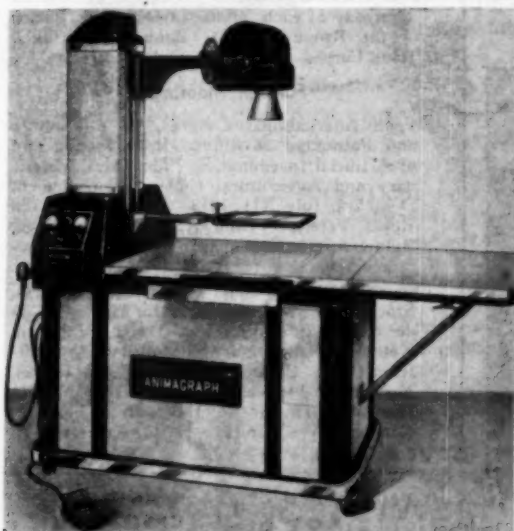
Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. C. Edward Taylor, 2146 South Broad St., San

(Continued on p. 39)

Luis Obispo, Calif., secretary.
New Castle County Veterinary Society, the second Wednesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. Harold Roberts, Paper Mill Road, Newark R3, Del., secretary.
New York City, Veterinary Medical Association of, the first Wednesday of each month at the New York Academy of Sciences, 2 East 63 St., New York City. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.
Northern New Jersey Veterinary Association, the fourth Tuesday evening from September through June, at the Casa Mana Restaurant, Cedar Lane, Teaneck, N. J. Robert R. Shomer, 1680 Teaneck Road, N. J., secretary.
Northern San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. Tom Hagan, Gen. Del., Escalon, Calif., secretary.
Oklahoma County Veterinary Medical Association, the second Wednesday of every month except July and August. W. C. Schilb, 4312 N. W. 23rd St., Oklahoma City, Okla., secretary.
Orange Belt Veterinary Medical Association, the second Monday of each month. Clark

Stillinger, 1742 E. Holt Ave., Pomona, Calif., secretary.
Orange County Veterinary Medical Association, bi-monthly. Donald E. Lind, 2643 N. Main, Santa Ana, Calif., secretary.
Peninsula Veterinary Medical Association, the third Monday of each month. P. H. Hand, Box 1035, Millbrae, Calif., secretary.
Piedmont Veterinary Medical Association, the last Friday of each month at 7:00 p.m. in Mull's Motel in Hickory, N. Car. C. N. Copeland, Hickory, N. Car., secretary.
Pima County (Arizona) Veterinary Medical Association, the third Wednesday of each month, in Tucson. R. W. Adami, 2103 S. 6th Ave., Tucson, Ariz., resident secretary.
Portland (Oregon) Veterinary Medical Association, the second Tuesday of each month, in the Auditorium of the Upjohn Company. Robert L. Hawley, 1001 N. W. Fourteenth Ave., Portland, Ore., secretary.
Redwood Empire Veterinary Medical Association, the third Thursday of each month. John McChesney, 40 6th St., Petaluma, Calif., secretary.
Roanoke-Tar (N. Car.) Veterinary Medical As-

(Continued on p. 40)



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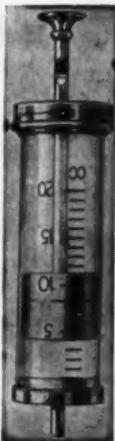
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(COMING MEETINGS — Continued from p. 59)

sociation, the first Friday of each month, time and place specified monthly. B. H. Brown, Weldon, N. Car., secretary.

Sacramento Valley Veterinary Medical Association, the second Wednesday of each month. S. M. Foster, 430 College, Woodland, Calif., secretary.

Saginaw Valley Veterinary Medical Association, the last Wednesday of each month. H. W. Harper, Flint Health Department, Flint, Mich., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month. Warren J. Dedrick, 904 S. Lemon, El Cajon, Calif., secretary.

Santa Barbara-Ventura Counties Veterinary Medical Association, the second Friday of even months. Joe Ridgway, 1784 Thompson Blvd., Ventura, Calif., secretary.

Southern California Veterinary Medical Association, the third Wednesday of each month. R. W. Sprowl, 11756 San Vicente Blvd., Los Angeles 49, Calif., secretary.

South Florida Veterinary Society, the third Tuesday of each month at 7:30 p.m. in the Seven Seas Restaurant, Miami, Fla. E. A. Majilton, 1093 N. E. 79th St., Miami, Fla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month, in Director's Parlor of the Brookside State Bank, Tulsa, Okla. John Carnes, Muskogee, Okla., secretary.

Foreign Meetings

Second International Congress of Physiology and Pathology of Animal Reproduction and of Artificial Insemination. The Royal Veterinary and Agricultural College, Copenhagen, Denmark, July 7-11, 1952. Ed. Sorensen, the Royal Veterinary and Agricultural College, Bulowsvej 13, Copenhagen V. Denmark, secretary general.

Fifteenth International Veterinary Congress. Stockholm, Sweden, Aug. 9-15, 1953. Dr. L. de Bleeck, Soestdijkseweg 113N., Bilthoven, Netherlands, secretary, Permanent Committee. (U. S. Committee: Dr. W. A. Hagan, N. Y. State Veterinary College, Ithaca, N. Y., chairman; Dr. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill., secretary.)

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(Continued on p. 44)

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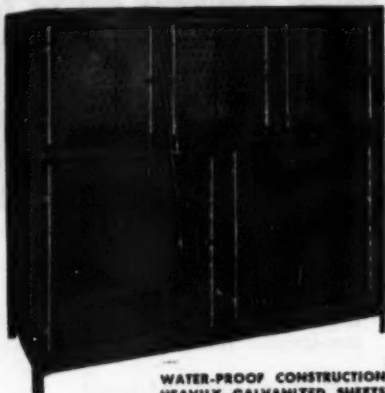
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(CLASSIFIED ADS — Continued from p. 42)

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WANTED VETERINARIAN—expanding small animal hospital in rapidly growing community. Fully equipped, recently modernized, accommodates forty dogs. Partnership or lease. Address A.M. Albin, Box 1473, Fairbanks, Alaska.

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(Continued on p. 46)

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(CLASSIFIED ADS — Continued from p. 44)

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WANTED—association with New York State small animal practitioner, leading to partnership or eventual purchase of practice. Cornell graduate, 5 years' experience. References. Address "Box Z 23," c/o JOURNAL of the AVMA.

Veterinarian with Army and general practice experience for past seven years desires position in commercial production. Protestant, married, and 29 years old. Address "Box Z 12," c/o JOURNAL of the AVMA.

WANTED—part time work in small animal hospital, evenings and weekends. '43 KSC graduate, 30 years old, married, no experience. California license. Address Dr. William C. Jamison, 1120 So. Gramercy Place, Los Angeles 9, Calif., Re 3-5616.

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PRACTICE WANTED—1950 graduate of eastern school desires mixed practice in Mass., Vt., or N.Y. Will consider purchase, lease with option to buy, or partnership. Am married and 30 years of age. Address "Box Z 18," c/o JOURNAL of the AVMA.

WANTED TO BUY—mixed practice in Pacific coast area. Will also work for possibility of future partnership or ownership. Address Dr. Loren Kittlesen, 1531 Ranier Ave., Everett, Wash.

(Continued on p. 48)

Dogs to Help Bring Out Big Vote in November

Coöperating with the efforts of various civic groups to get out the largest possible vote on November 4, Gaines Dog Food has designed and is distributing special dog blankets, imprinted with "Quit yapping — get registered and VOTE!" on one side while the other side reads, "Vote as you dog-gone please, but VOTE!"

Any dog owner willing to enlist his pet in this civic crusade can get one of the blankets by sending a request (specifying large or small) to Gaines Dog Foods, Kankakee, Ill.

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(CLASSIFIED ADS — Continued from p. 46)

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FOR SALE—due to death, veterinary hospital doing wonderful business. Other income with building. Or veterinarian with Calif. license to work. Mrs. A. E. Joseph, 10523 Long Beach Blvd., Lynwood, Calif., tel. LOraine 6-8091.

FOR SALE—animal hospital, city 4,000 population. Nice future for steady man. No competition. Inquire Stephenson Animal Hospital, Independence, Kan.

FOR SALE—fully equipped three-year-old small animal hospital, 70 animals, in industrial and agricultural area in Midwest. Business established ten years ago. Grosses near \$30,000 in small animals. Excellent opportunity for large animal work. Could support two men. Price \$35,000. Address "Box Z 3," c/o JOURNAL of the AVMA.

FOR LEASE—one of leading small animal hospitals in Pacific Northwest, 90% small animal, 10% large. Two man practice now grossing \$45,000 year. Established eight years. Tip-top shape including automatic dog dryer, x-ray fluoroscope, new aluminum kennels, steel wire concrete runs, eleven rooms. Owner being called into service. Will lease for two years with first option on renewal or purchase. Address "Box Z 4," c/o JOURNAL of the AVMA.

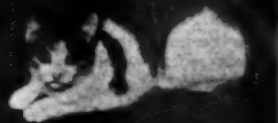
FOR LEASE—with option to buy, exclusive small animal practice in the wealthiest residential village in New York state, fifteen miles from New York City. Am about to retire at 83. Fully equipped for middle-aged experienced practitioner with good personality who wants to be relieved of the headaches of a big business and practically live in retirement with a very lucrative income. Inspection invited. Christian only will fit in this locality. Address "Box Z 8," c/o JOURNAL of the AVMA.

(Continued on p. 50)

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A puppy's eyes usually begin to open at 7 to 10 days. If the lids fail to open properly, it may be due to pus formations.

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Such treatment has proved to be most successful at the Friskies Research Kennels. However, any eye condition which does not respond rapidly should be treated by a veterinarian.



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Because meat protein contributes so much toward growth and the building of sound body tissues, there is naturally a great deal of interest in the amino acids, from which proteins are constructed.

Regarding the relative contributions of the various amino acids made by beef muscle and horse meat, a glance at the table below will show that there is very little difference between beef muscle and horse meat.

Approximate Amino Acid Content

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Amino Acids	Beef Muscle	Horse Meat
Arginine	7.7%	6.3%
Histidine	2.9%	3.6%
Lysine	8.1%	8.7%
Tyrosine	3.4%	3.9%
Tryptophan	1.3%	1.5%
Phenylalanine	4.9%	5.9%
Cystine	1.3%	1.0%
Methionine	3.3%	3.2%
Threonine	4.6%	4.4%
Leucine	7.7%	8.0%
Isoleucine	6.3%	6.3%
Valine	5.8%	5.8%
Glycine	5.0%	—

The surest method open to dog owners for providing sufficient amino acid intake is to feed a reputable commercial dog food like Friskies. Friskies is rich in meat protein, in amounts scientifically designed to provide all the amino acids dogs need for proper growth and sound healthy bodies.

HAVE A QUESTION? Write Friskies, Dept. Y, Los Angeles 36, California.

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(CLASSIFIED ADS — Continued from p. 48)

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FOR RENT, SALE, OR LEASE—small animal hospital near Kalamazoo, Mich., on main Detroit-Chicago highway. Present lessee does mixed practice with a good gross business. It's a good deal. Hospital built in 1946 is of glazed tile construction inside and out. Write Dr. J. Lavere Davidson, The Upjohn Co., Kalamazoo, Mich.

Remittance must accompany order

(Continued on p. 52)

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Official Organ of American Society
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Journal of Parasitology

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Error in Prices

According to the Professional Manufacturing Co., Chicago, prices quoted in their ad in the September JOURNAL (adv. p 15) were in error. The price for the deluxe table, stainless steel top, should have been \$290.50 instead of \$250, and for the standard table, porcelain top, \$246.50 instead of \$234.75.

in "durst"... shows dramatic results

in neuromuscular dysfunction in small animals

... results are from good to excellent without undesirable side reactions."¹

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¹ J. Durst, S. A. and DeCamp, D., Vet. Med., November 1950.

² Ibid.

Tablet containing:

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Atropine Sulfate 0.15 mg (1/400 gr.)

Sterile, isotonic solution containing:

Physostigmine Salicylate 1.0 mg per cc.

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SUPPLIED:

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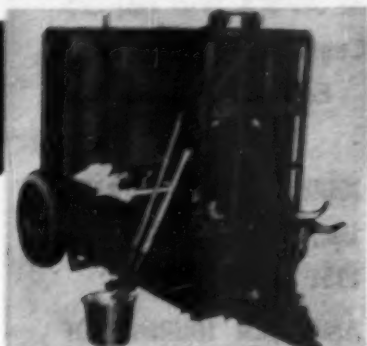
(Continued on p. 181)

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Exclusive Publication.—Articles submitted for publication are accepted with the understanding that they are not submitted to other journals.

Manuscripts.—Manuscripts must be type-written, double-spaced, and the original, not the carbon copy, submitted. One-inch margins should be allowed on the sides, with 2 in. at top and bottom. Articles should be concise and to the point. Short, simple sentences are clearer and more forceful than long, complex ones. Footnotes and bibliographies also should be typed double space and should be prepared in the following style: name of author, title of article, name of periodical with volume, month (day of month, if weekly), and year.

Illustrations.—Photographs should be furnished in glossy prints, and of a size that will fit into the Journals with a minimum of reduction. Photomicrographs which cannot be reduced should be marked for cropping to 1-column or 2-column width. Drawings should be made clearly and accurately in India ink on white paper. Figures appearing on graphs or charts should be large enough to allow for reduction necessary for the chart or graph to fit on Journal pages. All illustrations should bear the name of the author on the back.

Tables.—Tables should be simple. Complex tables are not conducive to perusal. It is wiser to summarize complex material rather than to attempt to tabulate it.

News.—Secretaries of associations and readers are requested to send us announcements of meetings and news items.

Anonymous Letters.—Anonymous communications, of whatever nature or purpose, to the JOURNAL or to the Association will not be published or referred for consideration to any Association official or committee.

AMERICAN VETERINARY MEDICAL
ASSOCIATION

600 So. Michigan Avenue
Chicago 5, Illinois

Correspondence

The following letter from Dr. Jack K. H. Wilde (M.R.C.V.S., London '40), assistant director of laboratory services, Veterinary Department, Northern Nigeria, Africa, will be of interest to the many veterinarians in this country whom he visited while on a trip to the States early this year. Dr. Wilde visited AVMA headquarters in January, 1952.

July 30, 1952

Dear Dr. Hardenbergh:

Since I visited you in Chicago earlier this year I have been very fully occupied, firstly with completion of my tour in the United States and subsequently with my return to England, my preparations for returning to Africa and a visit to East Africa before arrival here. This letter to you therefore, has been delayed for much longer than I originally intended and I hope you will forgive me for not writing before.

I would like you and all the veterinarians whom I met in the United States to know what gratitude I feel towards you all for the warm-hearted and friendly reception I received at your hands on my recent visit. It was an unforgettable experience, leaving not only pleasant memories but friendships which I am sure will be durable.

I hope, some day, to see you good people again and I can assure you, nothing would give me more pleasure than to meet you or any of our American veterinary colleagues in my own part of the British Commonwealth so that I might have a chance to return a little of the open-hearted hospitality which I enjoyed in America.

My cordial greetings and best wishes to the AVMA.

Yours sincerely,

Jack K. H. Wilde

Pitman-Moore Announces New Head of Control Department

Dr. Albert E. Jarvis (Ph.D.) will head the control department of Pitman-Moore Company, Division of Allied Laboratories, Inc., according to Mr. Kenneth Valentine, president.

Dr. Jarvis, who received his Ph.D. in pharmaceutical chemistry from Purdue University in 1947, has served for the past five years as assistant director under Dr. Frank B. Fisk, who retired in August. Dr. Jarvis will have complete control over all matters affecting the quality of Pitman-Moore pharmaceutical products. He is a member of the American Pharmaceutical Association and the Society for Quality Control.

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(CLASSIFIED ADS — Continued from p. 52)

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Dr. Fritz Volkmar, 1929 Irving Park Rd., Chicago 13, Ill., wishes to exchange his veterinary medical bookplate (*Ex-libris*) with that of other veterinarians. Correspondence invited.

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his leader dog, "Pat," in the interest of providing guidance for the blind. A driver will be supplied by Leader Dogs for the Blind, a nonprofit corporation founded by the Lions Clubs of Michigan.

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